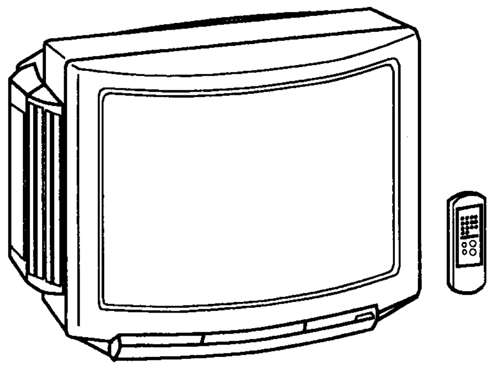
KV-A3411D
RM-816

SERVICE MANUAL

AEP Model

Chassis No. SCC-D93B-A



DE-2 CHASSIS

MODELS OF THE SAME SERIES	
KV-A3411D	

Specifications

		KV-A3411D	
Television/colour system		PAL B/G, SECAM (East), NTSC 3.58/4.43 (Video-in)	
Channel coverage		See "Receivable channels and channel display".	
Picture tube		BLACK TRINITRON approx. 86 cm (34 inches) (approx. 80 cm picture measured diagonally) 110° deflection	
Terminals	REAR	21-pin Euro connector (CENELEC standard)	-inputs for audio and video signals -inputs for RGB -outputs of TV video and audio signals
		2/ 21-pin EURO connector	-inputs for audio and video signals -inputs for S-video -outputs for audio and video signals (selectable)
		Audio output (variable)	-phono jacks
		External speaker terminals: 21-pin DIN	
	FRONT	Video input - phono jack	
		Audio inputs (L, R) - phono jacks	
		S-Video input - 4-pin DIN	
		Headphone jack: stereo minijack	
Sound output		30W + 30W (music power with 4Ω speakers)	
Power Consumption		139 Wh	
Dimensions (W x H x D)		approx. 880 x 664 x 580 mm	
Weight		approx. 78 kg	
Supplied accessories		RM-816 Remote Commander (1), IEC designation R6 batteries (2)	
Other features		Digital comb filter	

Receivable Channels and Channel Displays

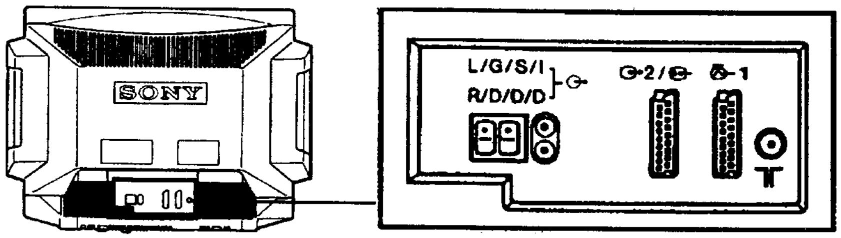
	Receivable channels	Indication displayed on the screen
PALB/G	E2 3 4 : 12 21 : 69	C02 C03 C04 : C12 C21 : C69
CABLE TV (1)	S1 2 : 41	S01 S02 : S41
CABLE TV (2)	S01 : S05 M1 : M10 U1 : U10	S42 : S46 S01 : S10 S11 : S20
ITALIA	A B C D E F G H H1 H2	C13 C14 C15 C16 C17 C18 C19 C20 C11 C12

MICROFILM

TRINITRON® COLOR TV

SONY®

21 pin connector (1, 2)



Pin No	1	2	Signal	Signal level
1	○	○	Audio output B (right)	Standard level: 0.5Vrms Output impedance:less than 1kohm*
2	○	○	Audio input B (right)	Standard level:0.5Vrms Input impedance:More than 10kohms*
3	○	○	Audio output A (left)	Standard level:0.5Vrms Output impedance:less than 1kohm*
4	○	○	Ground (audio)	
5	○	○	Ground (blue)	
6	○	○	Audio input A (left)	Standard level:0.5Vrms Input impedance:More than 10kohms*
7	○	●	Blue input	0.7V±3dB, 75ohms, positive
8	○	○	Function select (AV control)	High state (9.5—12V):Part mode Low state (0—2V):TV mode Input impedance:More than 10kohms Input capacitance:Less than 2nF
9	○	○	Ground (green)	
10	○	○	Open	
11	○	●	Green	Green signal:0.7V±3dB. 75ohms, positive
12	○	○	Open	
13	○	○	Ground(red)	
14	○	○	Ground (blanking)	
15	○	—	Red input	0.7V±3dB, 75ohms, positive
	—	○	(S signal) croma input	0.3V±3dB, 75ohms, positive
16	○	●	Blanking input (Ys signal)	High state (1—3V) Low state (0—0.4V) Input impedance:75ohmes
17	○	○	Ground (video output)	
18	○	○	Ground (video input)	
19	○	○	Video output	1V±3dB, 75ohms, positive Sync:0.3V(-3, +10dB)
20	○	—	Video input	1V±3dB, 75ohms, positive Sync:0.3V(-3, +10dB)
	—	○	Video Input/Y (S signal)	1V±3dB, 75ohms, positive Sync:0.3V(-3, +10dB)
21	○	○	Common ground (plug, sheld)	

○ connected ● unconnected (open) * At 20 Hz—20kHz

4 pin connector ( )

Pin No	Signal	Signal level
1	Ground	
2	Ground	
3	Y (S signal) input	1V±3dB 75ohm, positive Sync 0.3V$^{-3}_{+10}$dB
4	C (S signal) input	0.3V±3dB 75ohm positive

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SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
GENERAL

1-1. INTRODUCTION AND PREPARATION

Thank you for purchasing this TV from Sony. You now own a high-quality TV with many special features.

Special Features of This TV

High quality picture
- Black Trinitron picture tube provides a picture with high resolution and high contrast.
- Digital comb filter provides a superior picture quality.

Wide capability of colour system and tuning functions
- Colour systems: PAL, SECAM (East) and VIDEO-IN NTSC 4.43 and 3.58.
- 60 programme positions for presetting VHF, UHF, and cable channels.
- Frequency synthesizer tuning system enables direct channel presetting.

Full Spectrum Sound System
- 2 x 30 W music power.

Other special features
- Teletext decoder.
- Audio/Video input and S-video terminals at the front of the TV.
- Two 21-pin connectors (second 21-pin with S-video input) for the direct connection of video equipment.

Safety Information

All TV's operate on extremely high voltages. To prevent fire or electric shock please follow the safety procedures below. For your protection, refer all servicing to qualified personnel only.

For general safety:
- Do not expose the TV to rain or moisture.
- Do not open the rear cover.

For safe installation:
- Do not block the ventilation openings.
- Do not install the TV in hot, humid, or excessively dusty places.
- Do not install the TV where it may be exposed to mechanical vibrations.

For safe operations:
- Do not operate the TV on anything but 220 - 240 V AC.
- Do not operate the TV if any liquid or solid object falls on it – have it checked immediately.
- Do not keep the set plugged in if you are not going to use it for several days.
- Do not pull on the power cord to disconnect the TV. Pull it out by the plug.

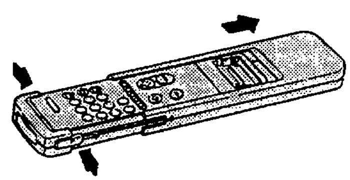
How to connect the aerial to this TV

Connect your aerial (using 75-ohm coaxial cable and IEC connectors, both not supplied) to the ⊤ socket on the rear of the TV.

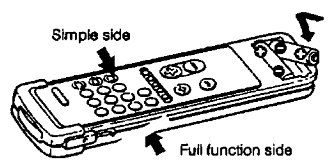
How to insert batteries into the Remote Commander

You have to insert the two supplied R6 batteries into the Remote Commander before you can use it to operate the TV.

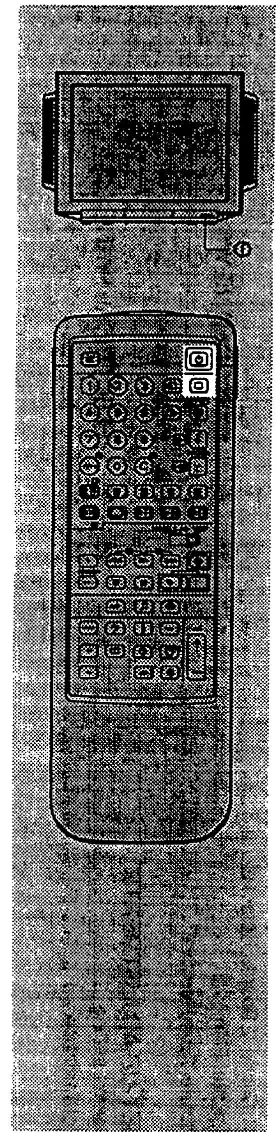
1 Remove the outside cover of the Remote Commander.



2 Insert both supplied batteries on the simple side of the commander, so that the + and the – polarities match those indicated.



1-2. SWITCHING ON/OFF



After you have completed the basic preparation your TV is ready to be connected to the mains power supply (220/240 V AC, 50 Hz).

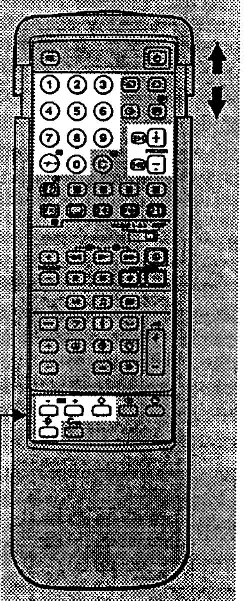
How to turn the TV on

Action	Result
1 Press ⏻ on the TV	The TV will turn on. **Note:** If the screen remains blank, the TV may be in the standby mode. Press ▢ to switch it on.

How to turn the TV off

A Temporarily	
Press ⏻ to enter standby mode.	The TV will be in standby. To return to the TV mode press ▢.
B Completely	
Press ⏻ on the TV.	The TV will turn off.

1-3. PRESETTING



Note: These buttons should be used in preset mode only.

After you have installed this TV you need to preset TV channels.

TV stations broadcast their channels at certain frequencies. You must preset these channels to programme numbers on this TV before you can watch the TV programmes.

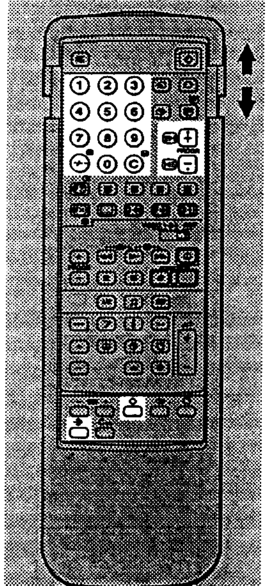
There are 60 spaces for storing these channels.

Slide open the full function side of the remote commander to reveal preset buttons.

If you are unfamiliar with the cannel numbers of the stations you wish to preset, use "How to preset channels automatically". If you are familiar with the channel numbers refer to "How to preset TV channels directly".

How to preset channels automatically

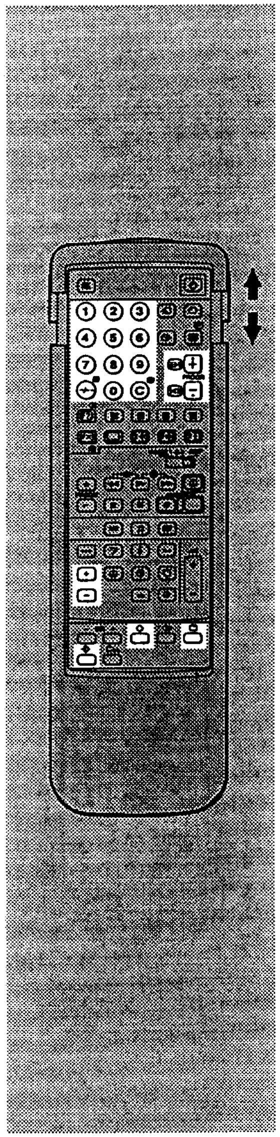
Action	Result
1 Press ⇾ to enter the preset mode.	The programme number will start flashing.
2 Press PROGR + or – or the number buttons to select the programme number to which you want to preset channels. ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ -/-- ⓪ **Note:** To select a double-digit number, use the -/-- button. For example, if you want to choose 23, press -/--, 2, and then 3.	The programm number changes.
3 Press ⊞ + or – once to search forward or backward for channels.	When a channel is tuned in, the search will stop. **Note:** If you want to skip a channel, press ⊞ + or ⊞ –.
4 Press ◇ if you want to store the channel which is tuned in. Press ⇾ to exit preset mode without storing.	The channel is now stored and you have returned to TV mode.
5 Repeat steps 1 to 4 to store the other channels.	



How to preset channels directly

Action	Result
1 Press ⇾ to enter the preset mode.	The programme number will start flashing.
2 Press PROGR +/– or the number buttons to select the programme number on which you want to preset a channel. ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ -/-- ⓪ **Note:** To select a double-digit number, use the -/-- button. For example, If you want to choose 23, press -/--, 2, and then 3.	The programme number changes.
3 Press C. If you want to select a cable channel, press C twice.	The indication "C--" ("S--" for a cable channel) starts flashing on the display.
4 Select the channel number with two digits (e.g. 04) by pressing the number buttons. ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ **Note:** Press the second number within 5 seconds after the first one, otherwise the operation will be cancelled.	The channel number changes. **Note:** If you have made a mistake the letter "X" will apear. Repeat step 4 again.
5 Press ◇ to store the channel which is tuned in. Press ⇾ to exit the preset mode without storing.	The channel is now stored and you have returned to TV mode.

Repeat steps 1 to 5 to store the other cannels.



How to Name a Station

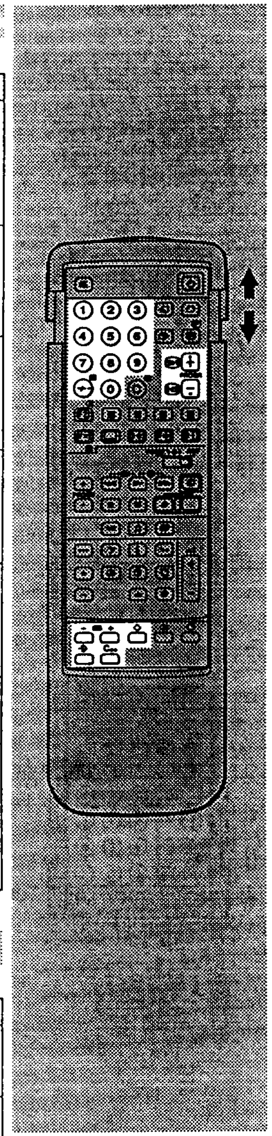
You can use up to five characters to "name" a channel or station (i.e. BBC 1).

Action	Result
1 Select a programme number you want to name by pressing the PROGR +/– or the number buttons.	The selected programme number will appear.
2 Press ⇾.	The programme number starts flashing.
3 Press ⊖.	The first column of the station name indication will start flashing.
4 Press + or – to select a letter in the alphabet, a number, or a blank space.	The letters of the alphabet, numbers and the space ("–") will appear sequentially.
5 Press ⊖.	The first character is now set and the second column will start flashing.
6 Repeat steps 4 and 5 to set each letter.	
7 Press ◇.	The channel is now stored and you have returned to TV mode.

How to tune in a channel temporarily

You can tune a channel in temporarily, if it has not been preset.

Action	Result
1 Press C. For cable channels, press C twice.	The indication "C" ("S" for cable channels) appears on the screen.
2 Select the channel number with two digits by pressing the number buttons (e.g. for channel 4, first press 0, then 4).	The channel is received, but it is not stored to any programme number.



How to Skip Programmes

Using the PROGR +/– buttons you can skip unused programme channel numbers. However, the skipped numbers may still be called up using the number buttons.

Action	Result
1 Press ⇾ to enter the preset mode.	The programme number will start flashing.
2 Select the programme number that you want to skip by pressing PROGR +/– or the number buttons.	The programme number changes.
3 Press C∞.	The lowest channel number appears under the programme number.
4 Press ◇.	The channel is now stored and you have returned to TV mode.
Repeat steps 1 to 4 to skip other programme numbers.	

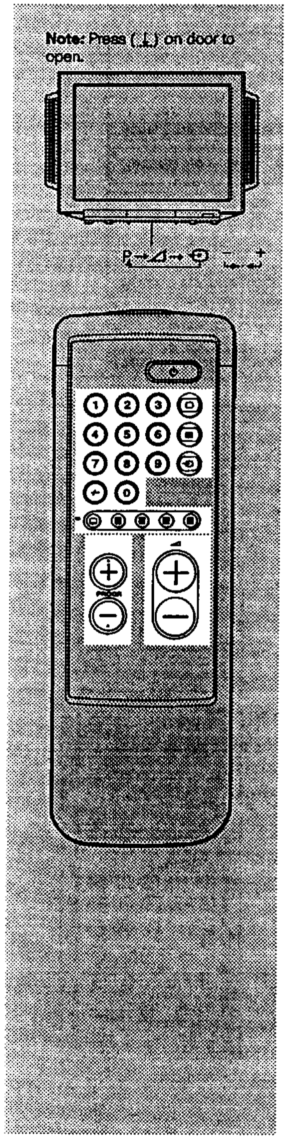
How to Fine Tune Manually

If the picture is distorted, you can fine tune the channel manually.

Action	Result
Press ⊞ + or – repeatedly until the picture looks normal.	The indication ← F → appears on the screen.
Press ⇾ to enter the preset mode.	The programme number starts flashing.
Press ◇.	The fine tuning is stored.

Note: The automatic fine tuning will function again when you preset the channel once more.

1-4. BASIC TV OPERATION



This section introduces you to the basic control functions which are available on the simple side of the remote commander.

How to Select Programmes

Before you can select programmes make sure that you have preset channels.

Action	Result
Press PROGR +/– or the number buttons. To select a double-digit number, use the -/-- button. For example, if you want to choose 23, press -/--, 2, and then 3.	The selected programme is displayed.

How to Adjust the Volume

Action	Result
Press ◢ + or –.	The volume markers will appear.

How to Use Additional Functions

How to operate with the buttons on the TV

You can also select programmes and adjust the volume using the P→◢→⊕ and ⋯ +/– buttons on the front of the TV.
For operation, first press the P→◢→⊕ button repeatedly so that the P (for programme), ◢ (for volume) or ⊕ (for input) indication appears on the screen, and then adjust with the ⋯ +/– buttons.

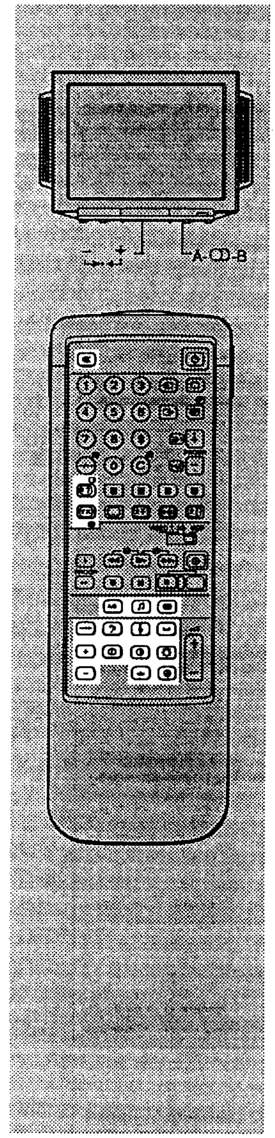
How to view the teletext

Press ⊜. To return to the TV mode, press ▢.
For details about the teletext operation.

How to view the video input picture

Press ⊕. To return to the TV mode, press ▢. For further details, refer to page 36.

1-5. ADVANCED TV OPERATION



This section shows you how to use convenient features and how to adjust the picture and sound to your taste.
Use the full-function side of the Remote Commander.

How to use on-screen display and special sound features

You can enjoy the following convenient features:

How to	Action	To resume normal picture sound
Display on-screen indications	Press ⊖.	Indications disappear after some seconds.
Display programme number	Press ⊖ twice.	Press ⊖ twice again.
Mute the sound	Press 🔇.	Press 🔇 again.
Select a language in bilingual programmes	Press A/B. The selected mode of the A-⊂⊃-B indicator on the TV lights up.	Press A/B again.
Set the sound to music listening position.	Press ♫.	Press ♫ again.
Use the space sound (special acoustic effect)	Press ⊖.	Press ⊖ again.
Request the time	Press ⊙.	Press ⊙ again.

How to adjust the picture and sound

Although the picture and sound have been adjusted at the factory, you might want to adjust them to your own taste. To do this, please follow the steps.

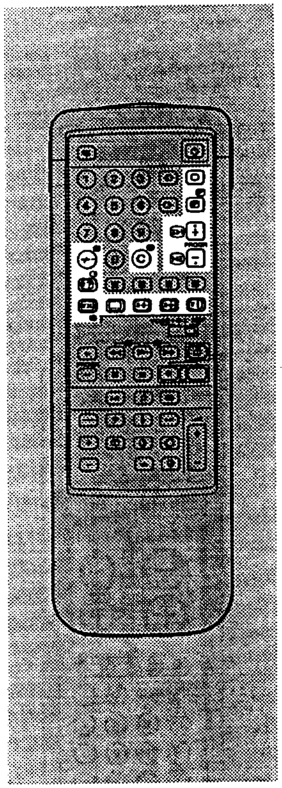
For picture adjustment

To Adjust:	Press:	Then:	Result (+ ⟷ –):
Picture:			
Colour intensity	◕	+ / –	More ⟷ Less
Picture Contrast	◑		More ⟷ Less
Brightness	☼		Bright ⟷ Dark
Hue (for NTSC only)	⛭		Reddish ⟷ Greenish
Picture Sharpness	⊂⊃		Sharp ⟷ Soft
Sound:			
Bass	𝄢	+ / –	More ⟷ Less
Treble	𝄞		More ⟷ Less
Balance	⊔		More Right ⟷ More Left

To reset the picture and sound to factory set levels press ⋯.

On the set:
Press ⋯ +/– buttons simultaneously.

1-6. TELETEXT OPERATION



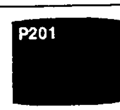
TV stations broadcast teletext programmes via the TV channels. To receive teletext programmes, use the buttons indicated in green on the full side of the Remote Commander.
With the simple side of the Remote Commander, only the basic operation is possible.

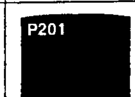
How to View the Teletext

Action	Result
1 Select the channel which carries the teletext service you wish to view.	The channel changes on the screen.
2 Press .  **Note on the TOP-TEXT** TOP-TEXT program is available only from some German stations. For information about the TOP-TEXT, please refer to the German language of this manual.	 First, the "TOP-TEXT?" indication appears, then the teletext will appear. If the teletext signal is not broadcast, then p100 is displayed.
3 Input three digits for the page number using the number buttons. **Note:** If you make a mistake, type in any three digits, then re-enter the correct page number.	The numbers are entered on the screen. The requested page will appear in a few seconds.
To return to the TV mode: Press . **To change the teletext channels:** First press to return to the TV mode, then repeat steps 1 to 3.	

Note
If the signal of the TV channel is weak, teletext errors may often occur.

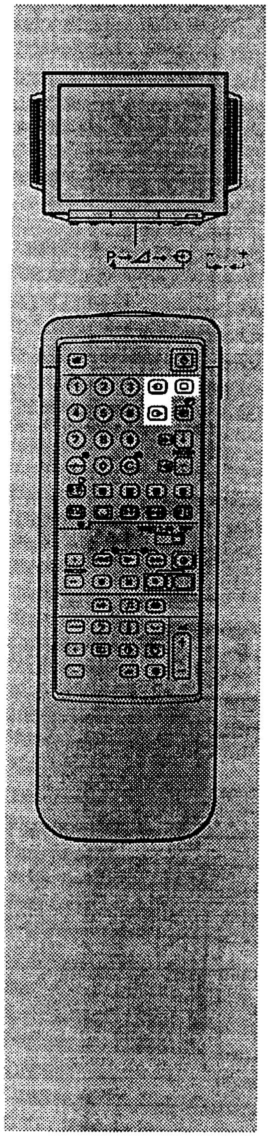
How to Use the Advanced Features of Teletext

How to	Action	Result (On-screen display)
Request the index page.	Press (INDEX).	 The index page appears.
Request the subtitle page (p888).	Press .	The subtitle page is displayed (p888).
Access the next or preceding page	Press (PAGE +) or (PAGE –).	 The next or preceding page appears.

How to	Action	Result
Superimpose the teletext display on the TV programme.	Press once if you are in text mode, or press twice if in TV mode. To return to the normal teletext display press again.	 The teletext displays are superimposed on the TV programme.
Prevent a teletext page from being updated or changed.	Press (HOLD). To resume normal teletext reception, press (TEXT/MIX).	 The HOLD symbol () appears on the screen and the chosen sub-page is held until you cancel.
Enlarge the teletext display.	Press once to enlarge the upper half. Press twice to enlarge the lower half. Press again to restore the normal display.	 The upper half is enlarged.
Reveal concealed information (e.g. answers to a quiz).	Press (REVEAL). Press again to conceal the information.	 The information is revealed.
Watch the TV programme while waiting for a requested page to be displayed.	**1.** Request a new page	The numbers are entered.
	2. Press (TEXT CL).	The TV program is displayed, and the requested page number and other teletext data appear at the top of the screen.
	3. When the requested page has been captured, the page number remains and the other data disappears.	
	4. Press to view this page.	The requested page is displayed.
Have a requested page displayed at a pre-determined time.	**1.** Request a desired page.	The requested page is displayed.
	2. Press (TP ON).	"T*****" appears at the bottom or "0001" at the top of the screen.
	3. Enter the time you want to have the page displayed with four digits using the number buttons. (For example, enter 0730 for 7:30 AM.)	The time is entered on the screen.
	To watch the TV programme until the requested time Press (TEXT CL). At the requested time, the page number will be displayed at the top of the screen. To view this page, press . **To cancel the request** Display the teletext page, then press (TP OFF).	

Some of the features may not be available depending on the Teletext service.

1-7. OPTIONAL CONNECTIONS/OPERATIONS



How to view the video input picture

You can view the picture of video equipment connected to the input terminals by selecting the input mode.

Operation

Symbol	Result
Press ⊕ repeatedly to select the desired input.	⊕1 — Symbol for the selected input appears. (See the table below.)
To return to the TV mode, press the ○ button.	

Input modes

Symbol	Result
⊕1	Audio/video input through the ⊖-1 connector.
⊕	RGB input through the ⊖-1 connector.
⊕2	Audio/video input through the ⊖ 2/⊖ connector.
⊕2	S video input (from a VTR equipped with an S video output) through the ⊖ 2/⊖ connector.
⊕3	Audio/video input through ⊕ and ⊕ jacks on the front.
⊕3	S video input through the ⊕ connectors on the front (4-pin connector).
You can also select the input mode using the P→⊿→⊕ button on the TV. In this case, first select ⊕, and then press +/– buttons to select the input.	

How to select the Output

The ⊖ 2/⊖ connector outputs four kinds of audio/video signals. You have to select one of them as follows.

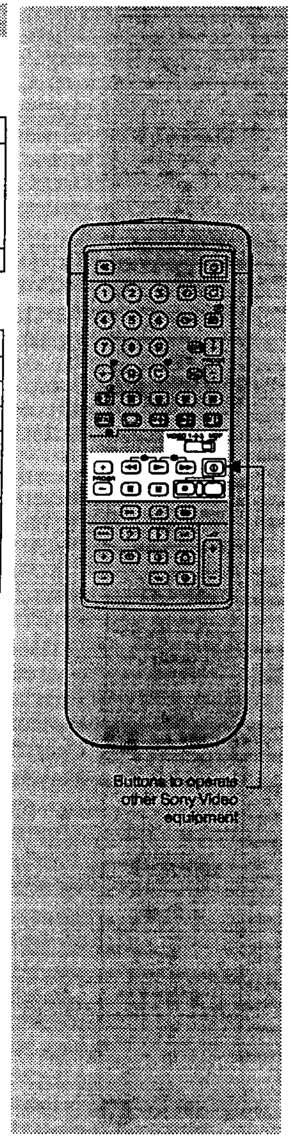
Operation

Action	Result
Press ⊖ repeatedly to select the desired input.	1⊖ — Symbol for the selected output signals appears. (See the table below.)

Output modes

Symbol	Output from
1⊖	The audio/video signal from the ⊖-1 connector.
2⊖	The audio/video signal from the ⊖ 2/⊖ connector.
3⊖	The audio/video signal from the ⊕, ⊕ connectors.
TV⊖	The audio/video signal from the Y aerial terminal.

1-8. ADDITIONAL REMOTE COMMANDER OPERATION



How to Control Other Sony Video Equipment

By switching the VIDEO 1/2/3 MDP selector, you can operate most Sony video equipment (Beta VTR, 8 mm VTR, VHS VTR, and video disc player)

1 Set VIDEO 1/2/3 MDP selector according to the desired video equipment.

VIDEO 1-2-3 MDP

- VIDEO 1: Beta or ED Beta VTR
- VIDEO 2: 8 mm VTR
- VIDEO 3: VHS VTR
- MDP: Video disc player

2 Use the buttons in the indicated area to operate video equipment.

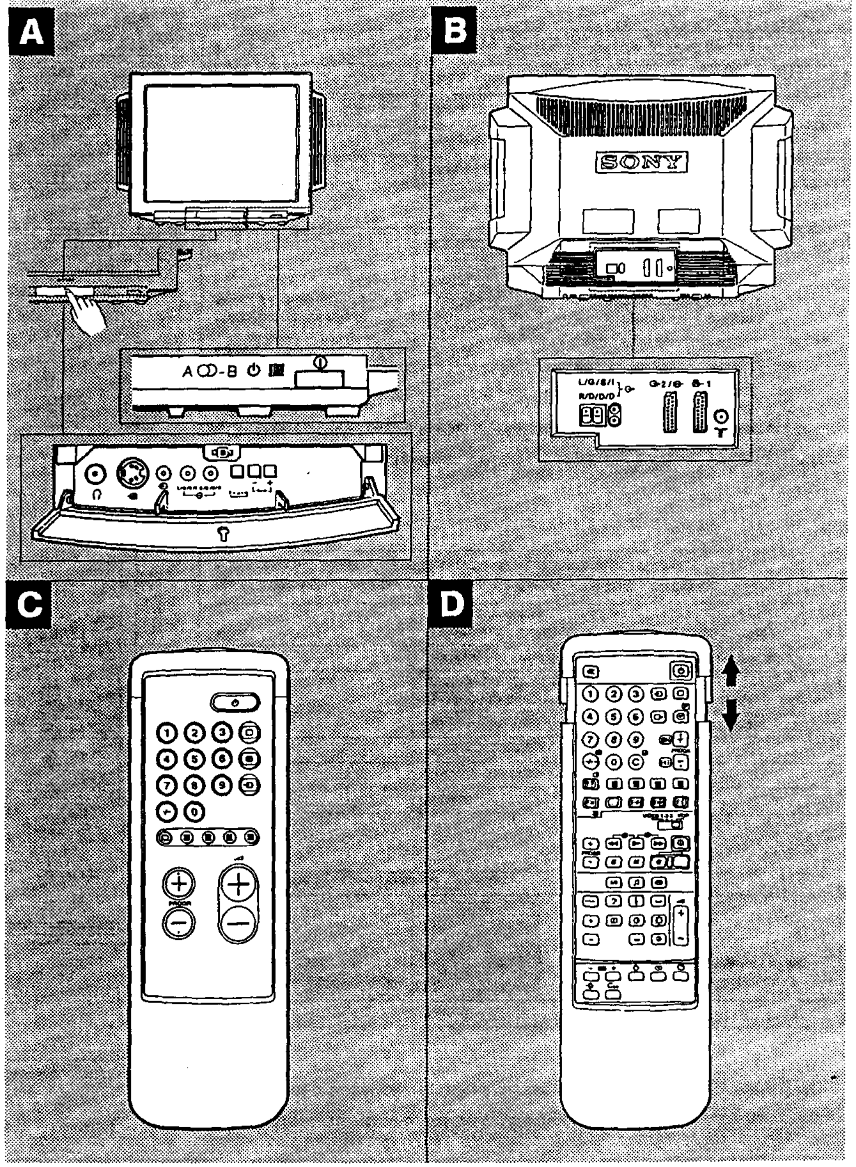
Note:
When you use the ● button, be sure to press this button and the one on the right simultaneously.

Notes:

- If your equipment is furnished with COMMAND MODE selector, set the selector to the same position as the VIDEO 1/2/3 MDP selector on the supplied Remote Commander.
- If the equipment does not have a certain funciton, the corresponding button on the Remote Commander will not work.

1-9. ADDITIONAL INFORMATION

Parts Identification



This section briefly describes the buttons and controls on the TV set and on the Remote Commander.
For more information, refer to the pages given next to each description.

A TV set – Front

Sign	Name
⏻	Main power switch
⏻	Standby indicator
A-◯◯-B	Bilingual A/B indicators
Ω	Headphones jack (stereo minijack)
⊕ ⊕ ⊕	Input jacks (S-video/video/audio)
P→◢→⊕	Function selector (Programme/ volume/input)
– +	Adjustment buttons for function selector

B TV set – Rear

Sign	Name
LGSI RDDD	Loudspeaker terminals (top: left, bottom: right)
⊖•2/⊖•	21-pin Euro-AV connector S-video/ video input, TV/video output)
⊖•1	21-pin Euro-AV connector (RGB/video input, TV/output)
⊖•	Audio output jacks (phono jacks)
Ƭ	Aerial terminal (IEC type)

C Remote Commander – simple side

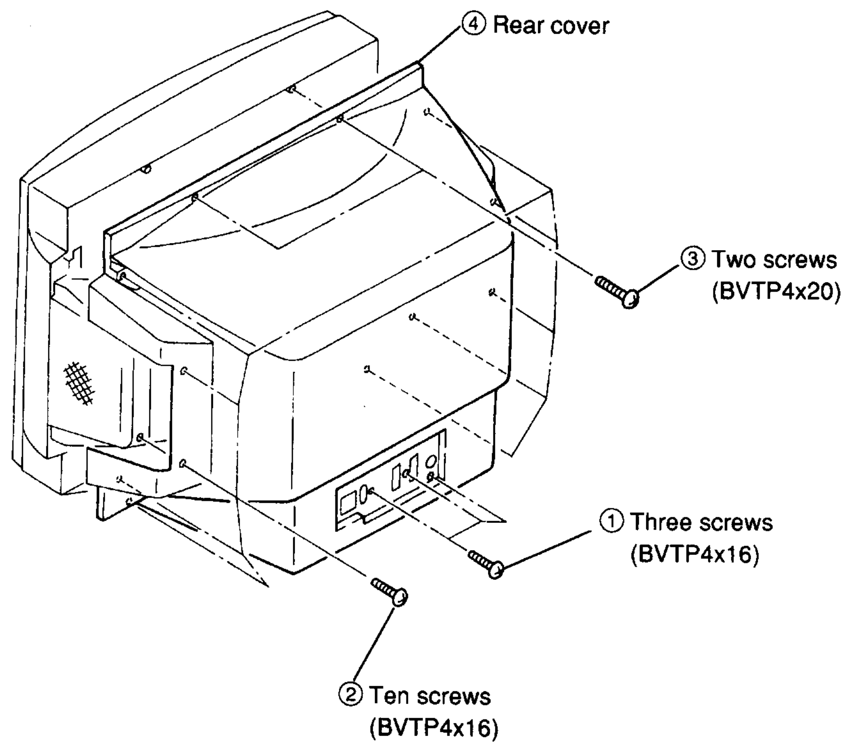
Sign	Name
⊕	Input mode selector
⊜	Teletext button
▣ ▣ ▣ ▣	TOP-Text-buttons
◯	TV mode selector
⏻	Standby button
1, 2, 3, 4, 5, 6, 7, 8, 9 and 0	Number buttons
-/--	Double-digit entering button
◢+/-	Volume control button
PROGR +/-	Programme selector

D Remote Commander – full function side

Sign	Name
🔇	Mute on/off button
⏻	Standby button
1, 2, 3, 4, 5, 6, 7, 8, 9 and 0	Number buttons
⊕	Input mode selector
◯	TV power on/TV mode selector button
⊖•	Output mode selector
⊜	Teletext button
♫	Music button
A/B	Language selector in bilingual programme
-/--	Double-digit entering button
C	Direct channel entering button
⊕	Space sound button
⊚	Request time display
⊞ ⊞ ⊞ ⊞ ⊞ ⊞ ⊞ ⊞ ⊞ ⊞	Teletext operation buttons
▣ ▣ ▣ ▣	TOP-Text-buttons
⊡	On-screen display button
→•←	Picture and sound adjustment reset button
◢+/-	Volume control
PROGR +/-	Programme selector
◑ ◐ ☼ ◕ ♛ ◺ ? ♮ +/-	Picture and sound controls
VIDEO 1/2/3, MDP	Video equipment selector
◀◀ ▶ ▶▶ ■ II ●	Video equipment operation buttons
C00	Programme number clear button
⇾	Channel preset button
- ⊞ +	Tuning buttons
◇	Channel store button
⊖	Station label button

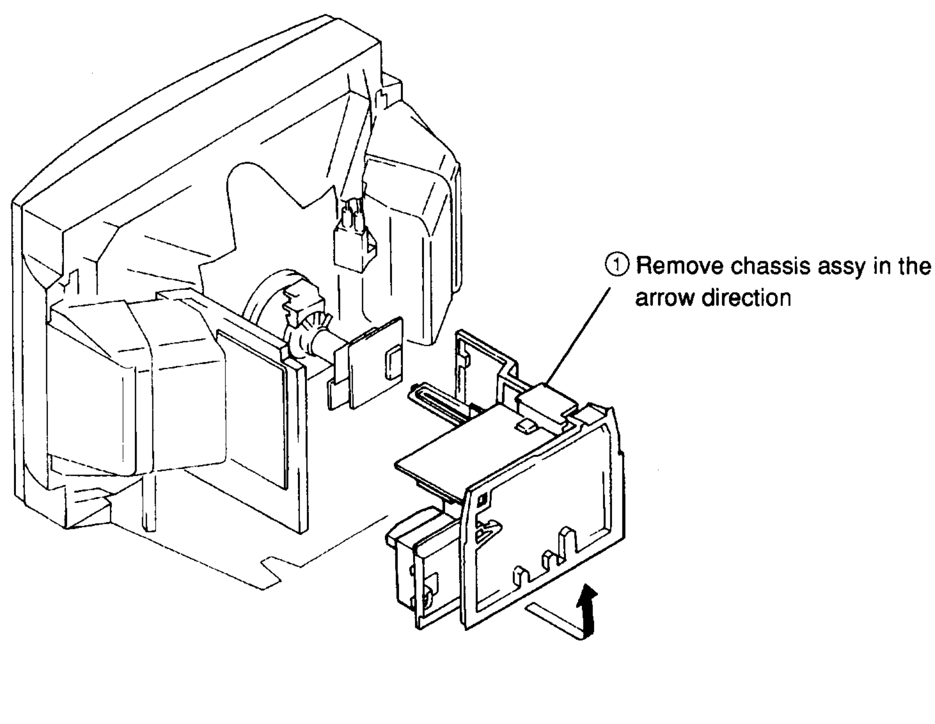
SECTION 2
DISASSEMBLY

2-1. REAR COVER REMOVAL

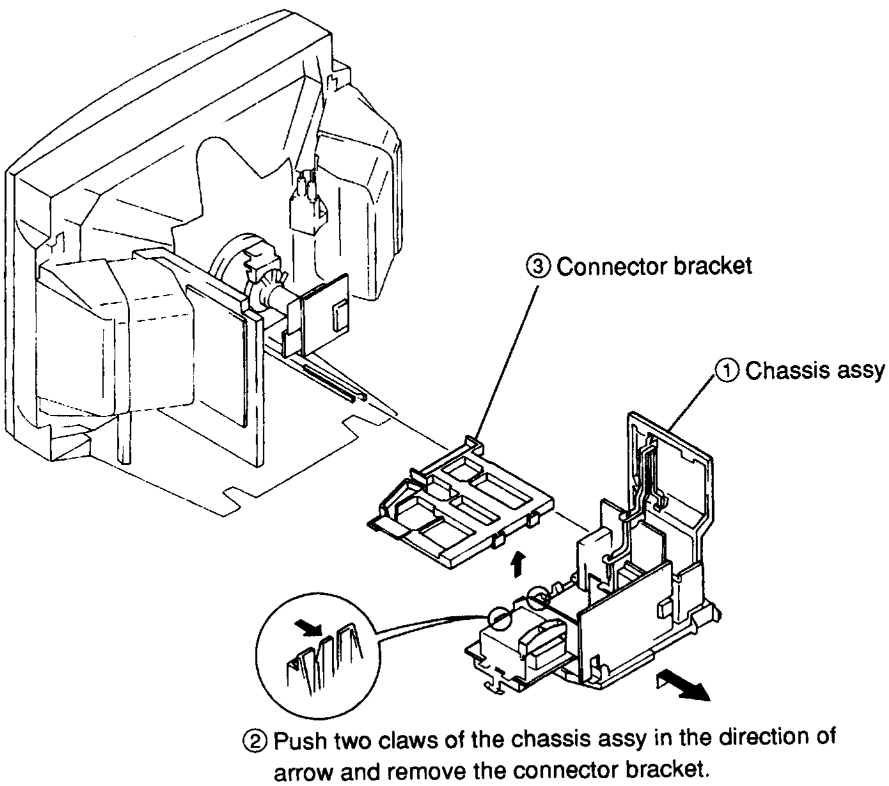


2-2. SERVICE POSITION

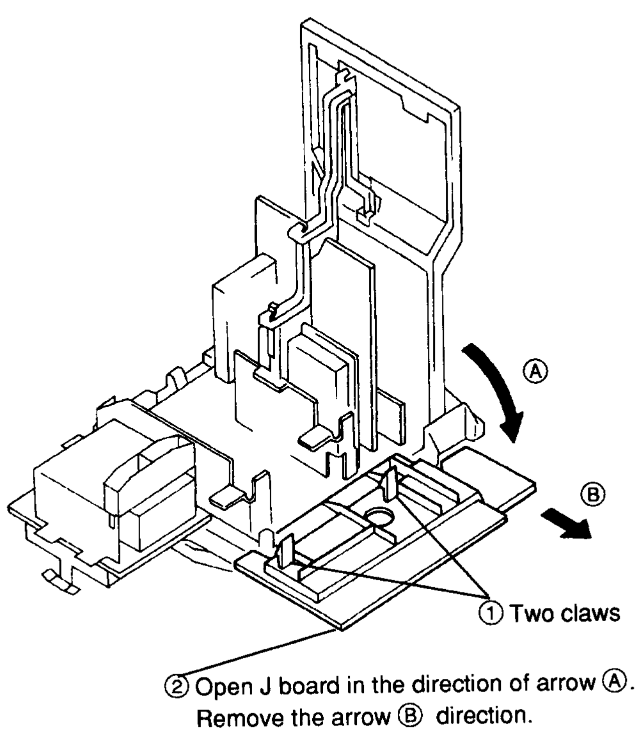
* Remove the connector braket and then perform the following servicing.
  (refer to 2-3. CHASSIS ASSY REMOVAL.)



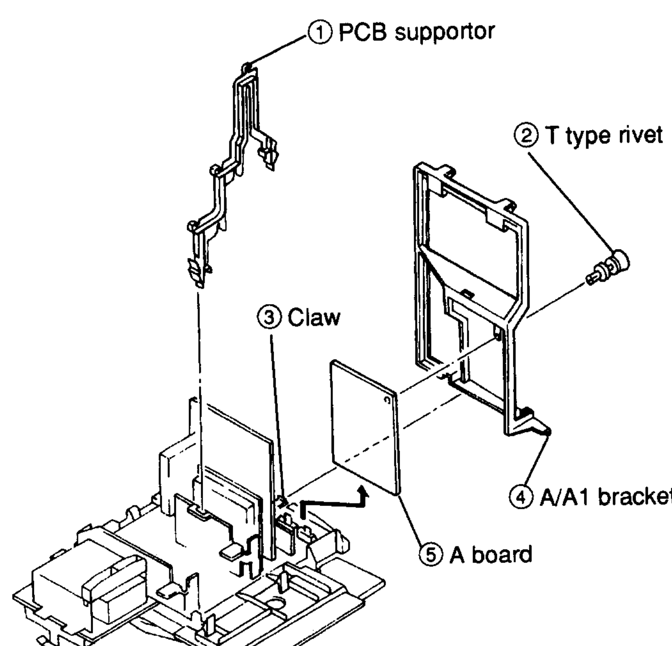
2-3. CHASSIS ASSY REMOVAL



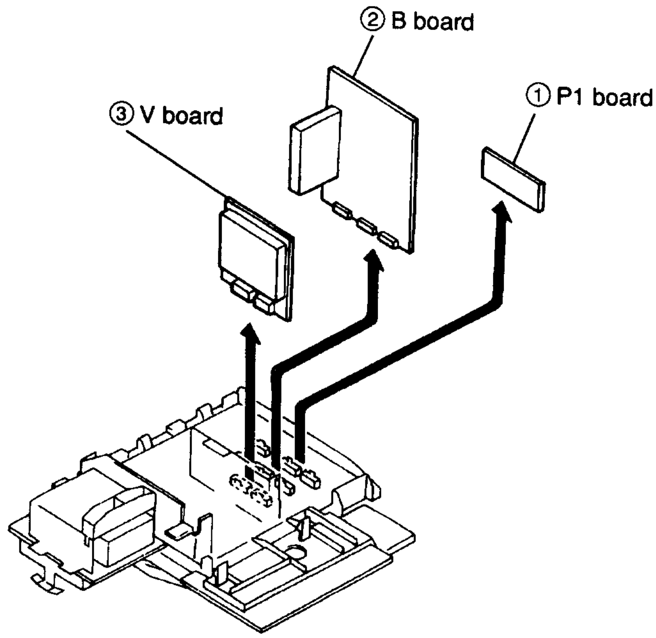
2-4. J BOARD REMOVAL



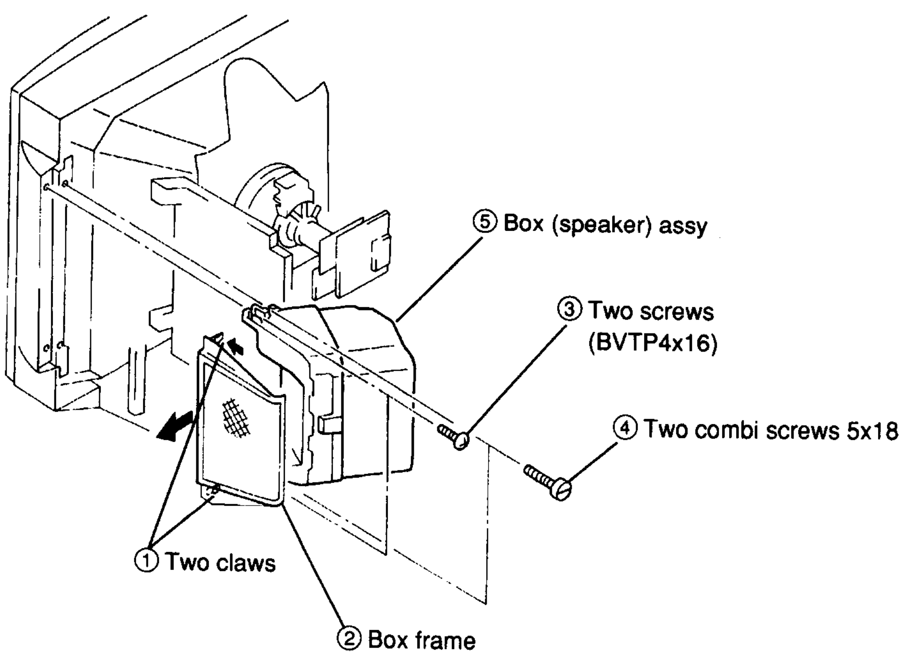
2-5. A BOARD REMOVAL



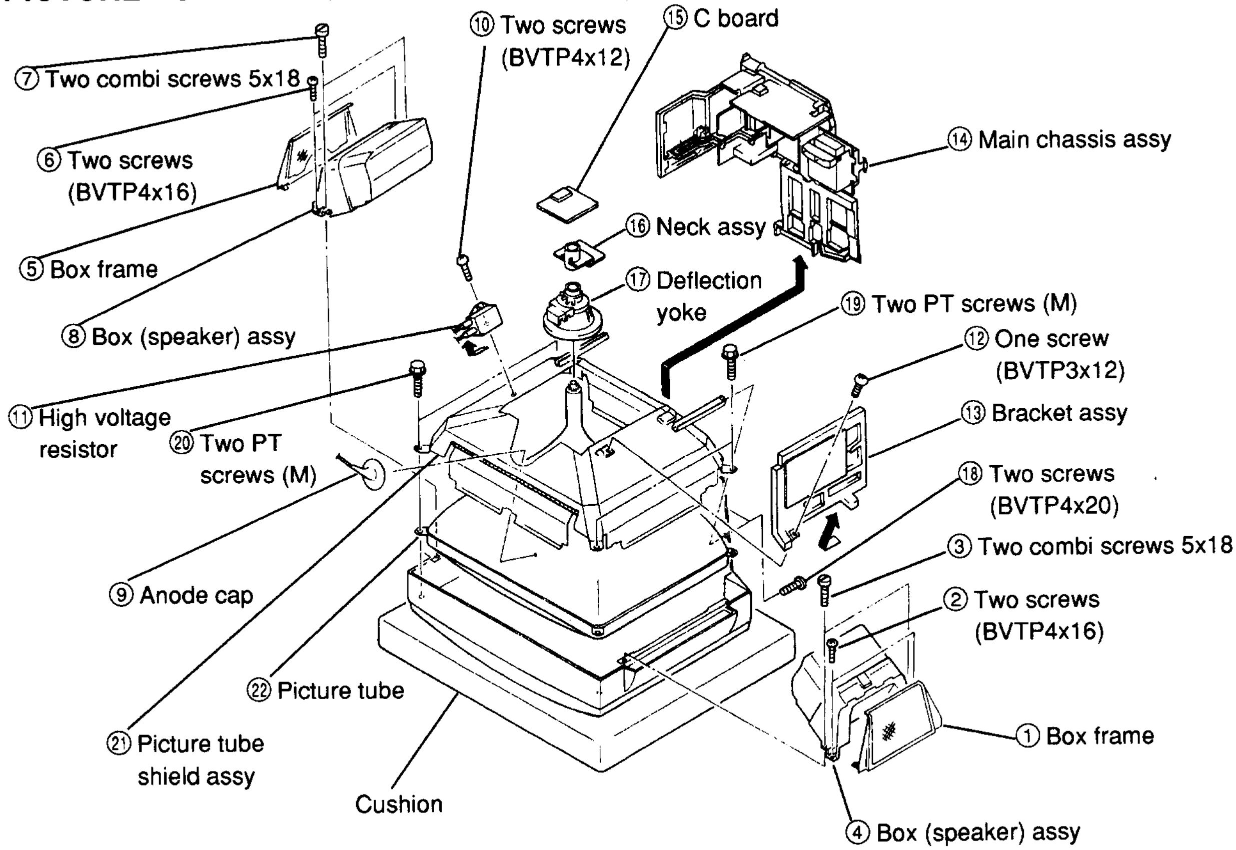
2-6. P1, B AND V BOARDS REMOVAL



2-7. SPEAKER REMOVAL

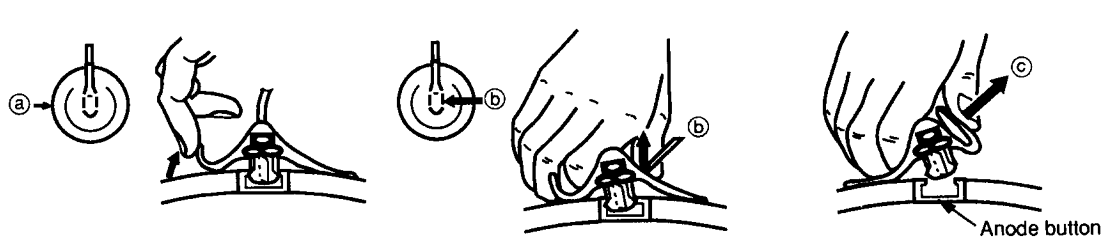


2-8. PICTURE TUBE REMOVAL



- **REMOVAL OF ANODE-CAP**
- **METHOD OF REMOVAL**

> CAUTION
> SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.



① Lift up one side of the rubber cap in the direction indicated by arrow ⓐ.

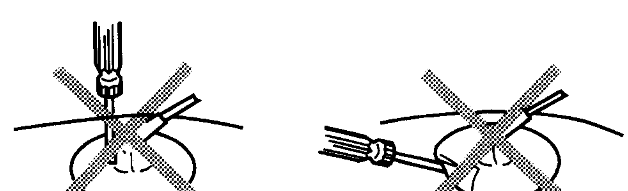
② Using a thumb, pull the rubber cap up firmly in the direction indicated by arrow ⓑ.

③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of arrow ⓒ.

- **HOW TO HANDLE AN ANODE-CAP**

① Don't damage the surface of the anode-cap with anything sharp!

② In order not to damage the inside of the anode-cap, don't press hard on the rubber!
An item called a shatter-hook terminal is built into the rubber.



SECTION 3
SET-UP ADJUSTMENTS

- When complete re-adjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there are specific instructions to the contrary, carry out these adjustments with the rated power supply.
- Unless there are specific instruction to the contrary, set the controls and switches as follows:
  ◑ CONTRAST 80%
  (or Remote control normal)
  ☼ BRIGHTNESS . 50%

- Carry out the following adjustments in this order:

1. Beam landing
2. Convergence
3. Focus
4. White balance

Note: Test equipment required
1. Colour bar/pattern generator
2. De-gausser
3. d.c. power supply
4. Digital multimeter
5. Oscilloscope

Preparation:

- In order to reduce the influence of geomagnetism on the set's picture tube, face it east or west.
- Switch on the set's power and de-gauss the tube with the de-gausser.

3-1. BEAM LANDING

1. Input a white signal from the pattern generator.
   Contrast } normal
   Brightness }
2. Position neck assembly as shown in Fig 3-2.
3. Set the pattern generator raster signal to red.
4. Move the deflection yoke to the rear and adjust the purity control so that the centre of the screen is red and either side are equal areas of blue and green.
   (see Figures 3-1 through 3-3.)
5. Move the deflection yoke forward and adjust so that the entire screen is red. (See Figure 3-1.)
6. Switch the raster signal to blue and then to green to verify the setting.
7. Once the position of the deflection yoke has been decided, lock it in position with the screws.

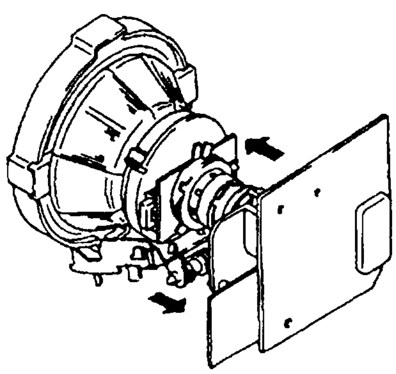


Fig. 3-1

Fig. 3-2

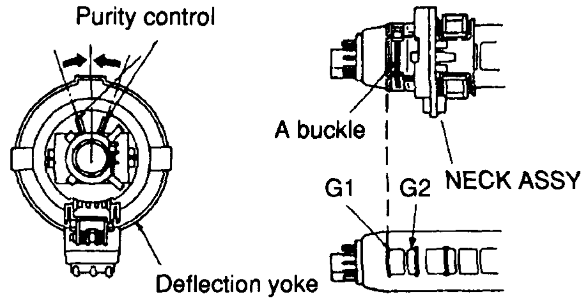


Fig. 3-3

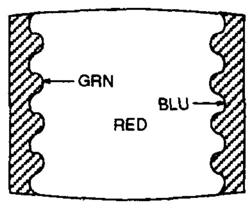
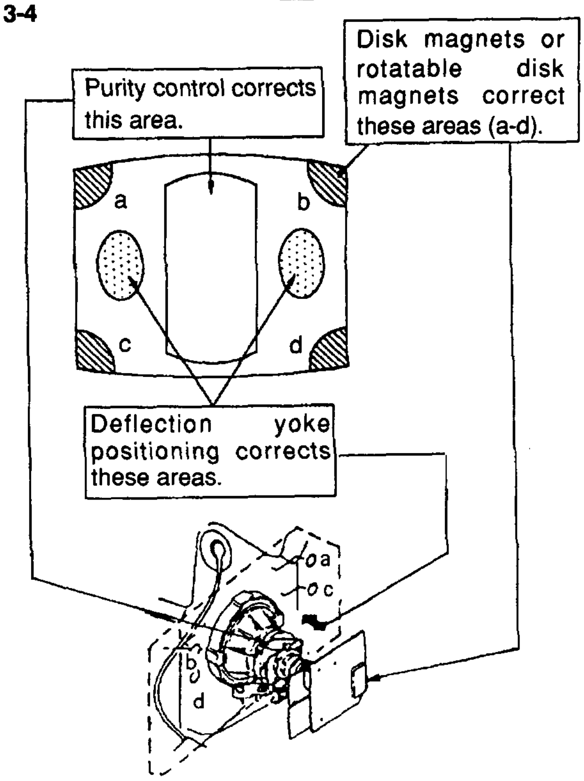


Fig. 3-4

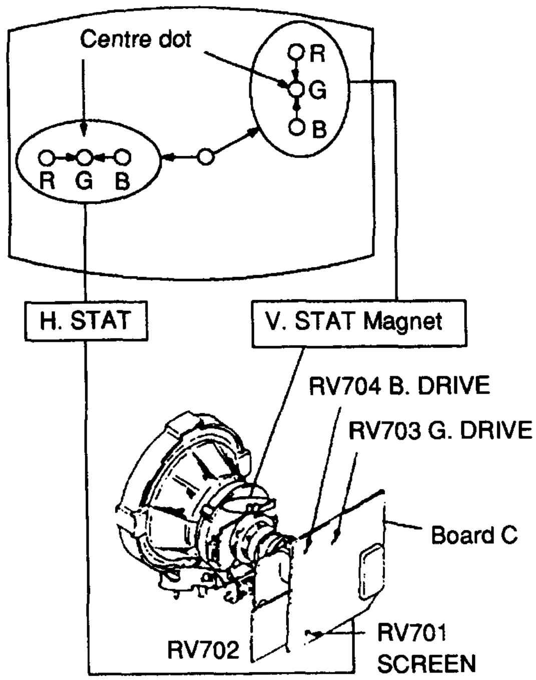


3-2. CONVERGENCE

Preparation:

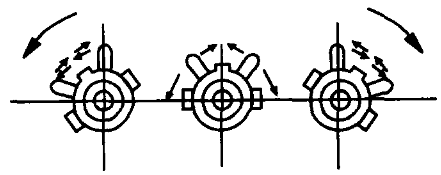
- Before starting this adjustment adjust the focus, horizontal size and vertical size.
- Set the BRIGHTNESS to minimum.
- Input a dot pattern from the Pattern generator.

(1) Horizontal and vertical static convergence



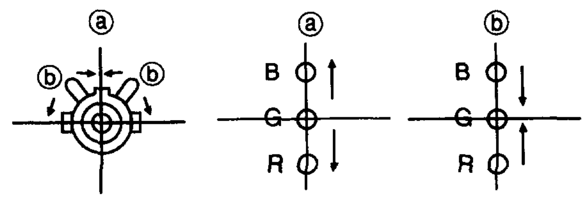
1. HORIZONTAL movement - Adjust the H.STAT control so that, at the centre of the screen, the red, green, and blue spots are on top of each other.
2. VERTICAL movement - Adjust the V.STAT magnet so that, at the centre of the screen, the red, green, and blue spots are on top of each other.
3. If the H.STAT variable resistor cannot bring the red, green, and blue spots together at the centre of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V. STAT magnet as described below.
   (In this case, the H.STAT variable resistor and the V.STAT magnet affect each other)

- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT

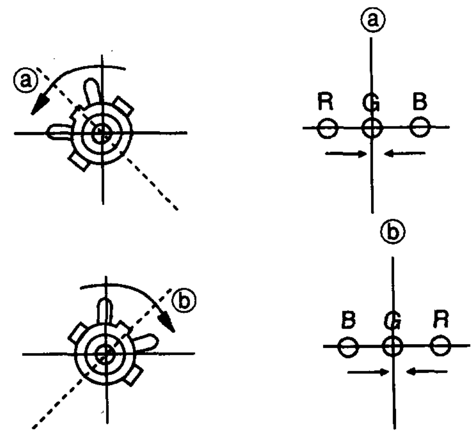


4. If the V.STAT magnet is moved in the direction of the ⓐ and ⓑ arrows, the red, green, and blue spots move as shown below:

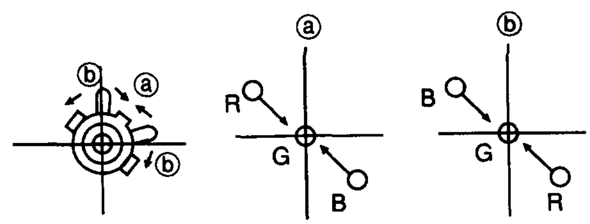
①



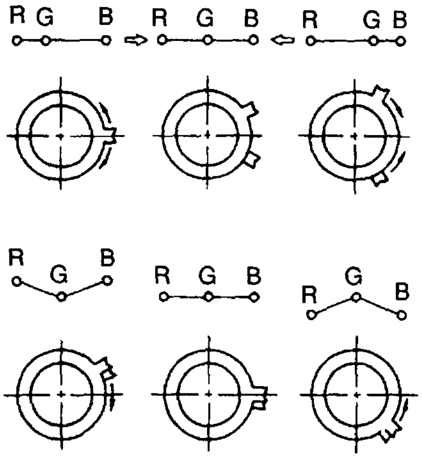
②



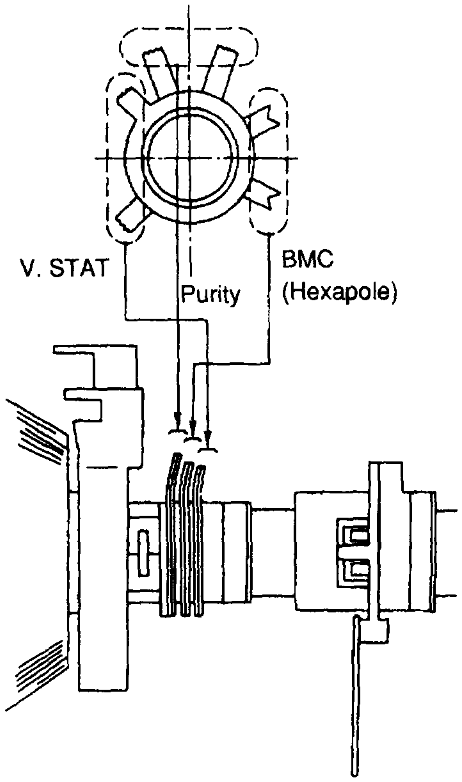
③



- Operation of BMC (Hexapole) Magnet



- The respective dot positions caused by moving each magnet interact. Therefore be sure to perform this adjustment while watching the screen.
  Use the H.STAT VR to adjust the red, green, and blue dots so that they coincide at the centre of the screen (by moving the dots in the horizontal direction).



(2) Dynamic Convergence Adjustment

1. Adjust the Y.CROSS (RV1705) and Y.BOW (RV1702) so that RED and BLUE, as shown in Fig. 3-6, become a=b=c.

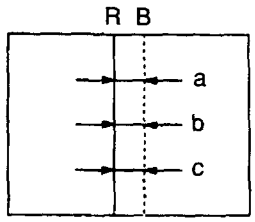


Fig. 3-6

2. Match the horizontal convergence at the centre of the screen with H STAT VR.
3. Adjust the CORNER BOW (RV1703), so that RED and BLUE, as shown in Fig. 3-7, become a=b=c and d=c=f.
   Note: At this point, if the proper relationship between a=c or d=f is not established, repeat the adjustment of Y.CROSS (RV1705).

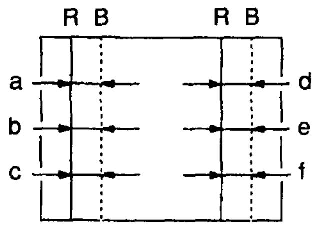


Fig. 3-7

4. Match the horizontal convergence at the centre of the screen with the H STAT VR.
5. Adjust the H TILT (RV1701) so that RED and BLUE, as shown in Fig. 3-8, become a=b.

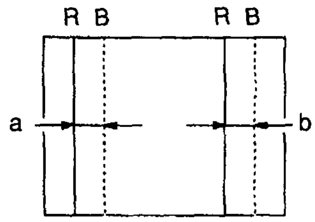


Fig. 3-8

6. Adjust the H AMP (RV1704) so that RED and BLUE, as shown in Fig. 3-9, become b=c.

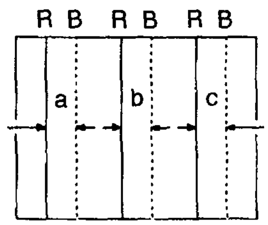
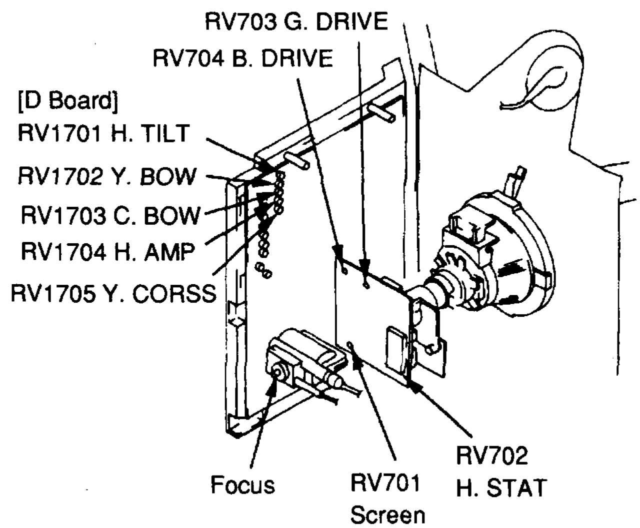
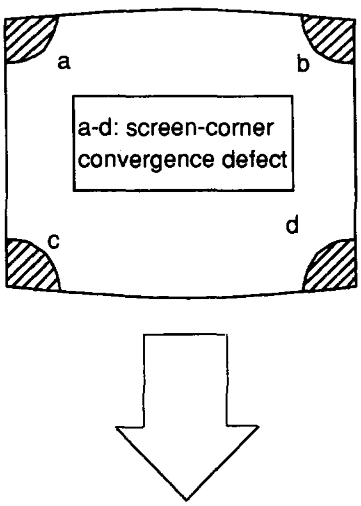


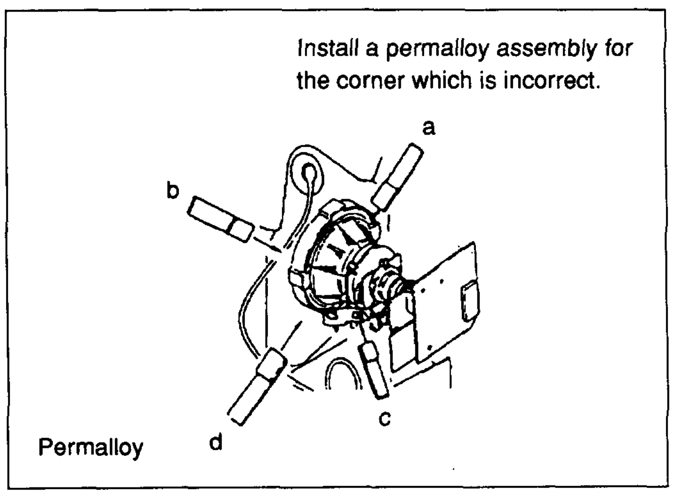
Fig. 3-9

7. Match the horizontal convergence at the centre of the screen with the H STAT VR.
8. When the H AMP is adjusted repeat the procedures described in Step (5) to Step (7).
9. If the convergence at the corners of the screen diverges, the adjustments described from Step (3) onwards should be repeated.



(3) Screen corner convergence





3-3. FOCUS

Adjust the focus to optimize the display.

3-4. WHITE BALANCE

Screen G2 setting

1. Input a dot signal from the Pattern generator.
2. *Set the picture BRIGHTNESS control to its minimum level.*
3. Apply 180V d.c., from an external power supply, to the R, G, and B cathodes.
4. While watching the picture, adjust G2 control RV701 (Screen) to the point just before the fly-back lines disappear.

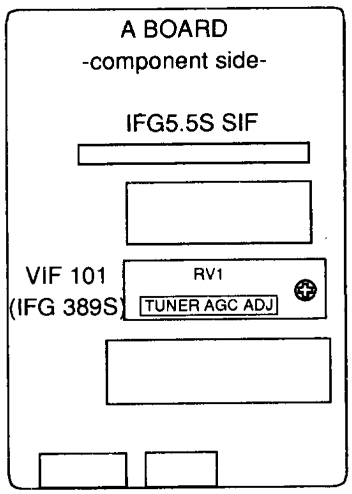
White balance adjustment

1. Input an all-white signal from the Pattern generator.
2. Set the PICTURE, BRIGHTNESS and COLOUR controls to their normal levels.
3. Use RV704 (B Drive) and RV703 (G Drive) to adjust white balance.

In the adjustments below, unless there is a specific instruction to the contrary, set the PICTURE, COLOUR and BRIGHTNESS controls to their normal levels.

SECTION 4
CIRCUIT ADJUSTMENTS

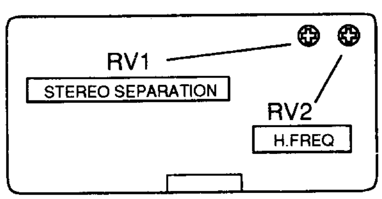
4-1. A BOARD ADJUSTMENTS



TUNER AGC ADJUSTMENT (IFG 389S)

1. Tune to an off-air signal.
2. Adjust AGC VR (IFG389S) so that snow noise and cross-modulation just disappear from the picture.

IFG5. 5S SIF



IFG5.5S SIF -component side-

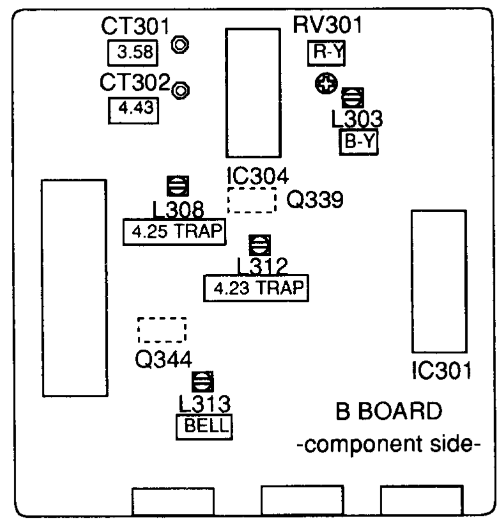
STEREO SEPARATION ADJUSTMENT (RVI)

1. Input stereo signals. (L-CH 400Hz, R-CH 1kHz)
2. Check the stereo indicator.
3. Connect an oscilloscope, via a 1kHz band-pass filter, to pin ⑧ (CH1) of CN1.
4. Adjust RV1 so that the 1kHz signal is reduced to a minimum.

H FREQ (RV2)

1. Input a PAL COLOUR BAR signal. Connect a jumper between IC4-pin ⑫ and GND.
2. Connect a frequency counter, via a 10:1 probe, to pin ④ IFG5.5S (HP) of CNl.
3. Adjust RV2 (H.FREQ) to 15.625kHz ± 50Hz.
4. After adjustment, remove the jumper.

4-2. B BOARD ADJUSTMENTS



REF OSC NTSC 3.58 MHz Adjustment (CT301)

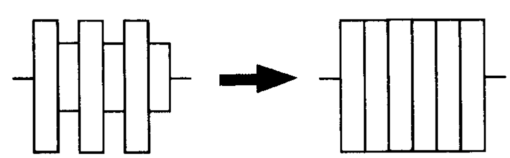
1. Input an NTSC 3.58 MHz COLOUR BAR pattern.
2. Short circuit between IC301-pin ⑰ and ground.
3. Adjust CT301 for the slowest picture movement.
4. Remove the jumper wire from IC301.

REF OSC Adjustment NTSC 4.43 MHz Adjustment (CT302)

1. Input an NTSC 4.43 MHz COLOUR BAR pattern.
2. Short circuit between IC301-pin ⑰ and ground.
3. Adjust CT302 for the slowest picture movement.
4. Remove the jumper wire from IC301.

BELL FILTER ADJUSTMENT (L313)

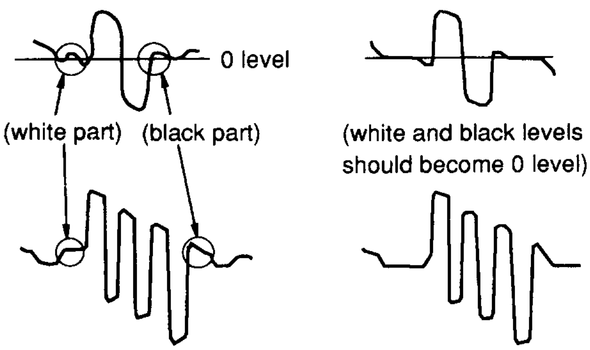
1. Input a SECAM colour bar signal.
2. Connect the oscilloscope to the emitter of Q344.
3. Adjust L313 so that the waveform is flat.



<Before Adjustment> <After Adjustment>

DISCRIMINATOR ADJUSTMENT (RV301 and L303)

1. Input a SECAM colour bar signal.
2. Connect the oscilloscope to IC304-pin ①.
3. Adjust RV301 until the white and black sections of the waveform at pin ① are at the 0 level.
4. Connect the oscilloscope to IC304-pin ③.
5. Adjust L303 until the white and black sections of the waveform at pin ③ are at the 0 level.



(Before Adjustment) (After Adjustment)

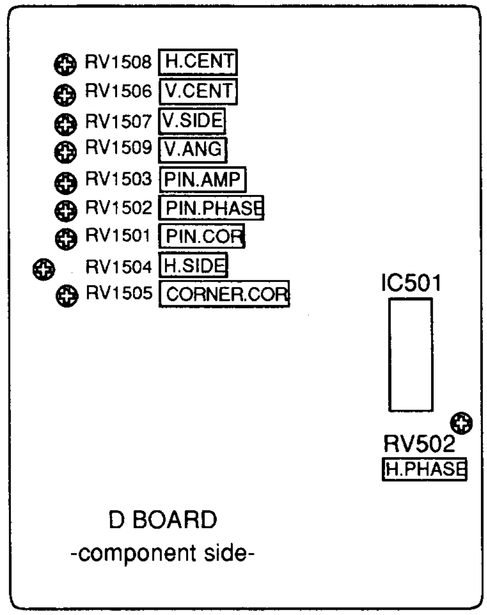
4.25 TRAP Adjustment (L308)

1. Input a SECAM COLOUR BAR pattern.
2. Connect an oscilloscope to the Q339 emitter.
3. Adjust L308 so that the 4.25 MHz waveform is at a minimum.

4.23 TRAP ADJUSTMENT (L312)

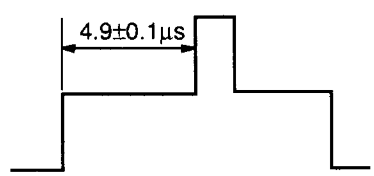
1. Input a SECAM COLOUR BAR pattern.
2. Connect an oscilloscope to the Q339 emitter.
3. Adjust L312 so that the 4.43 MHz waveform is minimum.

4-3. D BOARD ADJUSTMENT

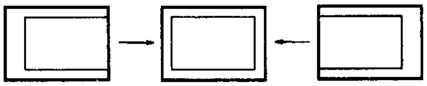


H.PHASE ADJUSTMENT (RV502)

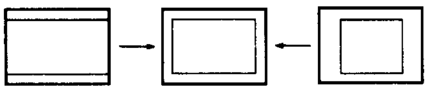
1. Input a PAL colour bar signal.
2. Set the PICTURE and BRIGHTNESS controls to their normal levels.
3. Set RV1508 (H.CENT) to its mechanical centre.
4. Connect the oscilloscope to IC501-pin ⑪ (SCP).
5. Rotate RV502 to adjust the waveform to 4.9 ± 0.1μs.



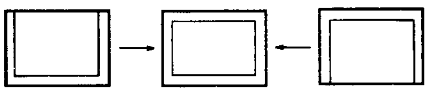
RV1508
H. CENT (HORIZONTAL CENTRE)



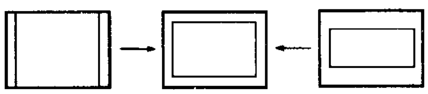
RV1504
H. SIZE (HORIZONTAL SIZE)



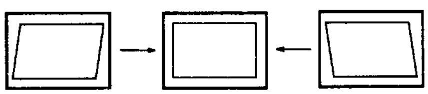
RV1506
V. CENT (VERTICAL CENTRE)



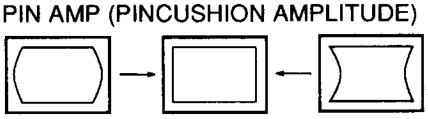
RV1507
V. SIZE (VERTICAL SIZE)



RV1509
V. ANGLE (VERTICAL ANGLE)



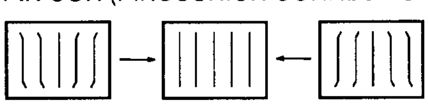
RV1503
PIN AMP (PINCUSHION AMPLITUDE)



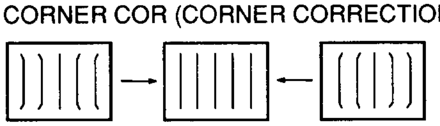
RV1502
PIN PHASE (PINCUSHION PHASE)



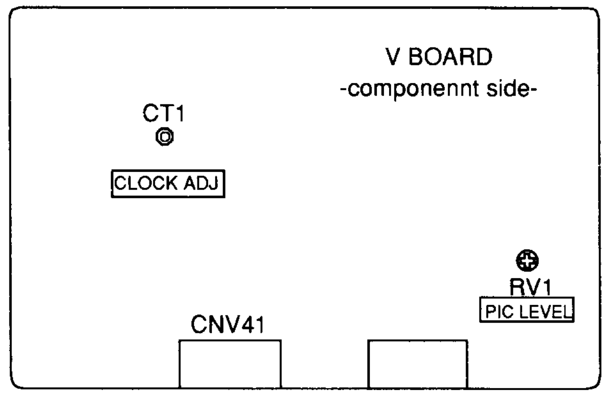
RV1501
PIN COR (PINCUSHION CORRECTION)



RV1505
CORNER COR (CORNER CORRECTION)



4-4. V BOARD ADJUSTMENTS



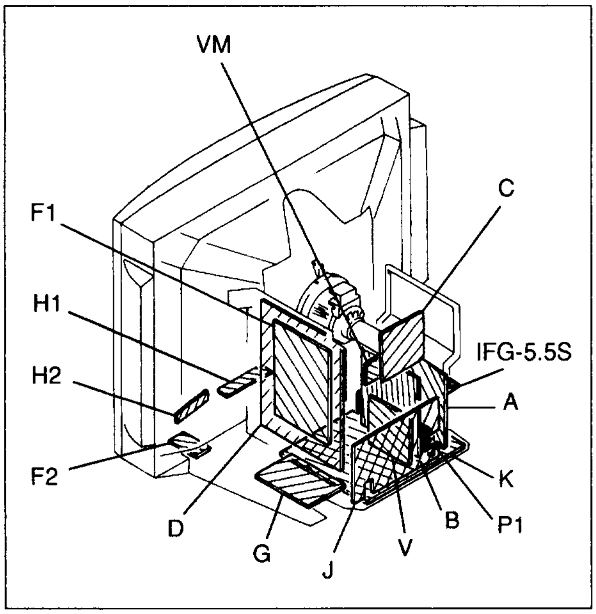
CLOCK ADJUSTMENT (CT1)

1. Remove CNV41 connector pin ③.
2. Put the system into text mode.
3. Adjust CT1 so that the picture is stable.

PIC LEVEL ADJUSTMENT (RV1)

1. Set the PICTURE control to maximum.
2. Adjust RV1 so that the RGB output is 0.75V.

5-4. CIRCUIT BOARDS LOCATION



Note:
Components identified by shading and marked ⚠ are critical for safety. Replace only with the part number specified.

5-5. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:

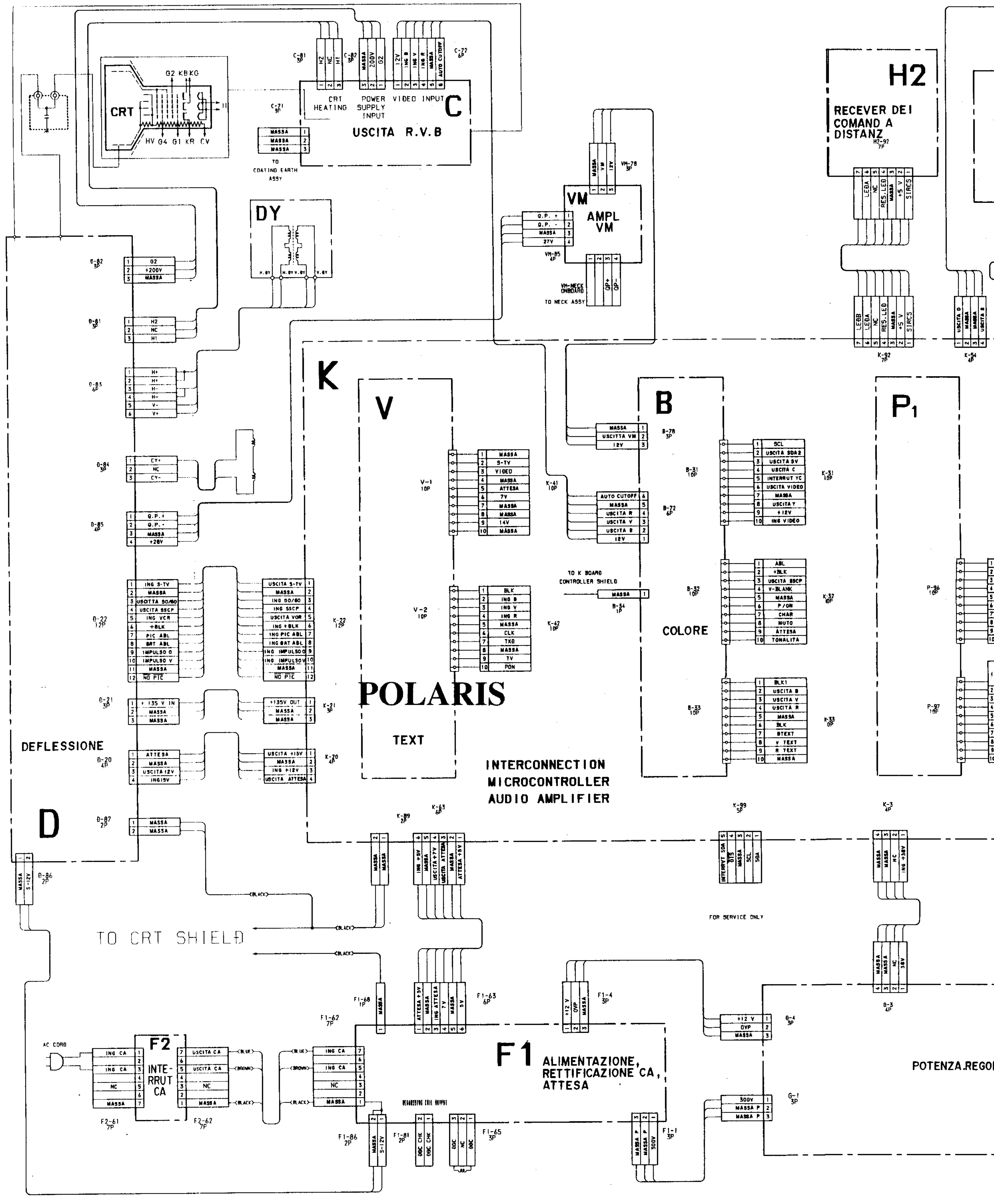
- All capacitors are in μF unless otherwise stated (p=pF). Working voltage of 50V or less are not indicated, except for electrolytics.
- Resistors which do not hane a power rating value shown are as follows.

Pitch: 5 mm Power rating: 1/4W

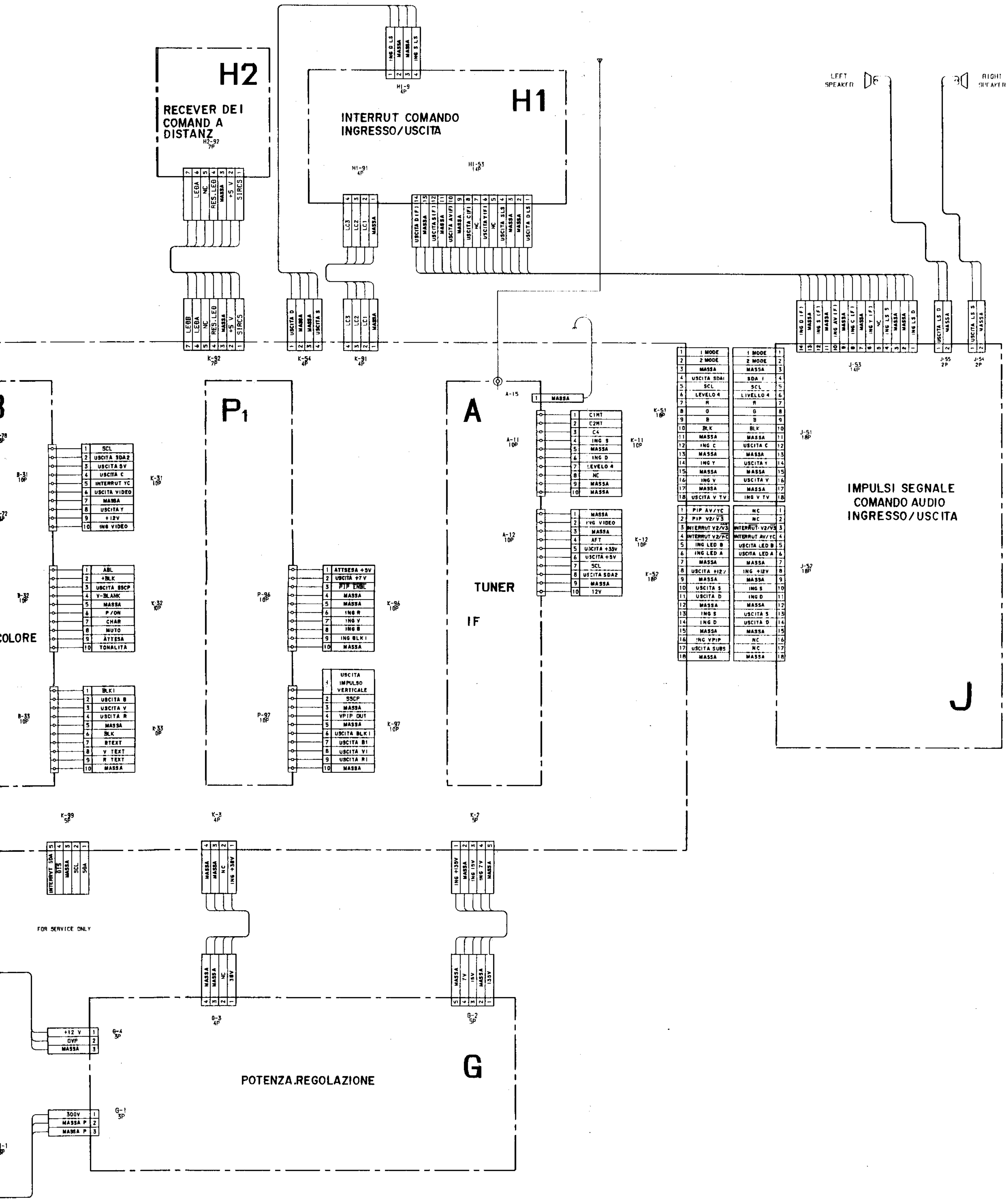
- Chip resistors are 1/10W.
- All resistor values are in Ohms. kΩ=1000Ω, MΩ=1000kΩ.
- [nonflammable resistor symbol] : nonflammable resistor.
- [fusible resistor symbol] : fusible resistor.
- △: internal component.
- ▭: panel outline or servicing adjustment.
- All variable and adjustable resistors have characteristic curve B. unless otherwise noted.
- All voltages shown are in Volts.
- Readings were taken with a 10 MΩ digital multimeter.
- Readings were taken with a colour-bar signal input.
- Voltage variations may be occur to normal production tolerance.
- ▬: Voltage supply rails.
- ░░▶: Signal path.

Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NON-FLAMMABLE CARBON
	: FUSE	NON-FLAMMABLE FUSIBLE
	: RS	NON-FLAMMABLE METAL OXIDE
	: RB	NON-FLAMMABLE CEMENT
	: RW	NON-FLAMMABLE WIREWOUND
	: ※	VARIABLE RESISTOR
COIL	: LF-8L	MINIATURE INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE



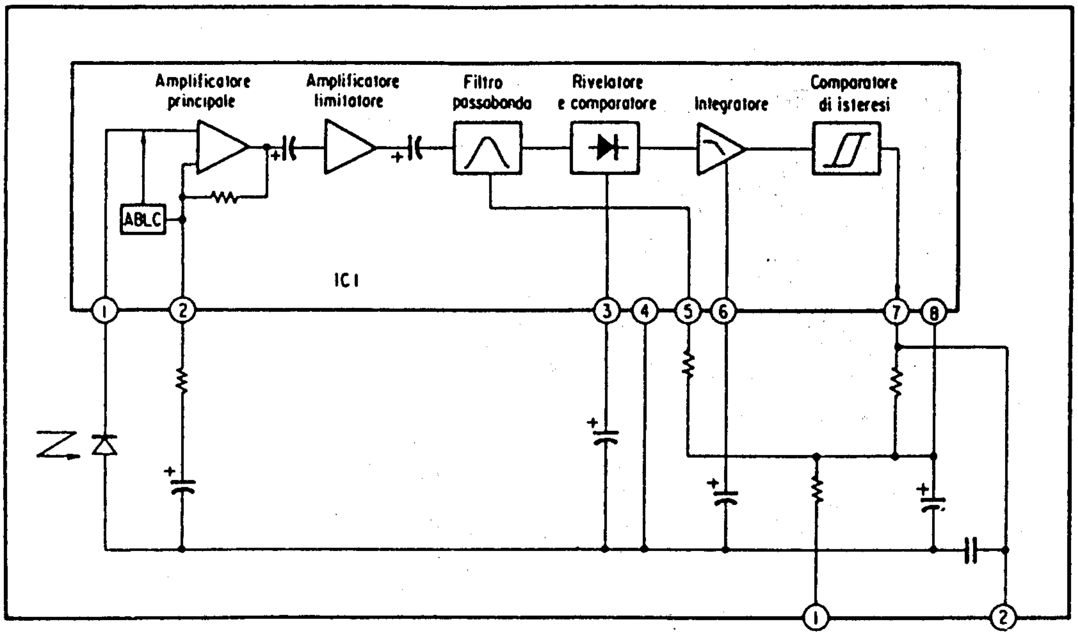
CRT
C
USCITA R.V.B
CRT HEATING
POWER SUPPLY INPUT
VIDEO INPUT
DY
VM
AMPL VM
H2
RECEVER DEI COMAND A DISTANZ
K
V
B
P1
COLORE
POLARIS
TEXT
INTERCONNECTION MICROCONTROLLER AUDIO AMPLIFIER
DEFLESSIONE
D
TO CRT SHIELD
FOR SERVICE ONLY
F2
INTERRUT CA
F1
ALIMENTAZIONE, RETTIFICAZIONE CA, ATTESA
POTENZA.REGO
AC CORD



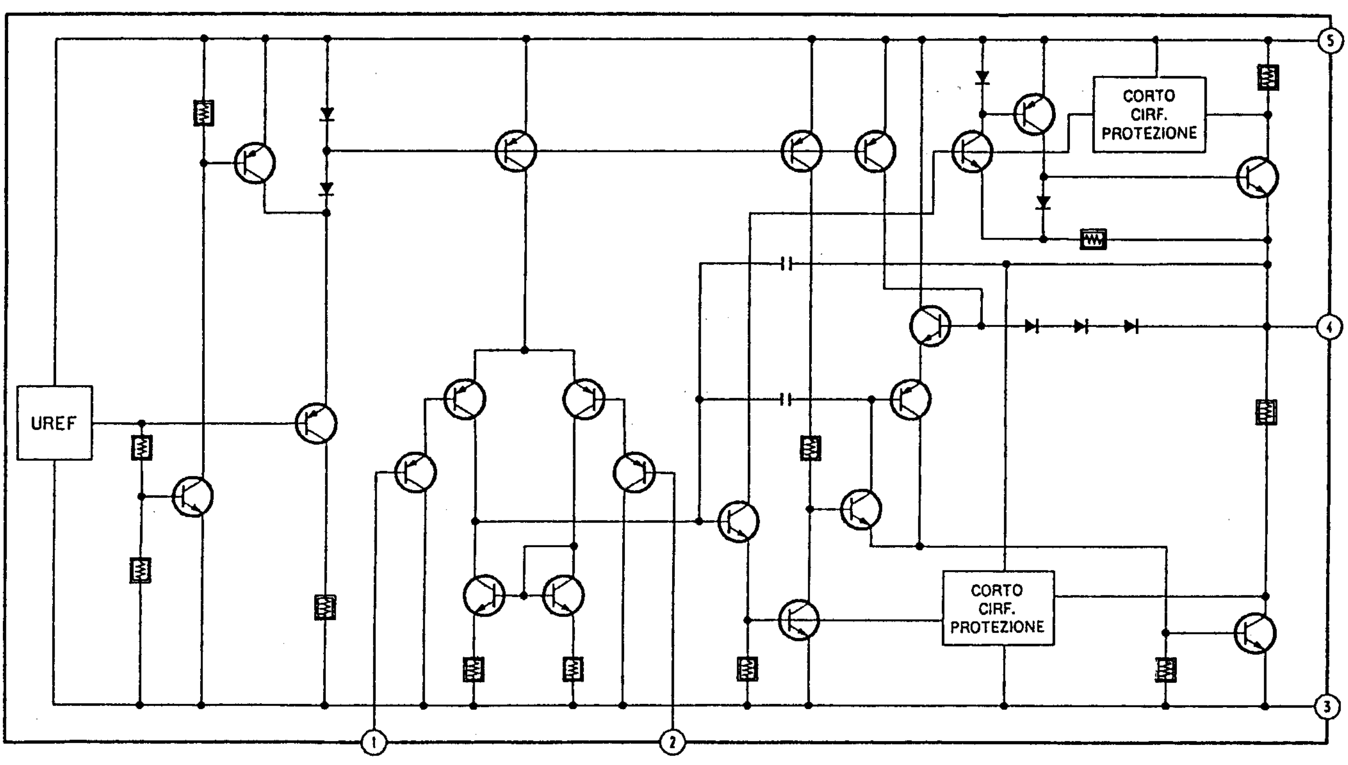
H2
RECEVER DEI COMAND A DISTANZ
H1
INTERRUT COMANDO INGRESSO/USCITA
LEFT SPEAKER
RIGHT SPEAKER
P1
A
TUNER
IF
COLORE
IMPULSI SEGNALE COMANDO AUDIO INGRESSO/USCITA
J
FOR SERVICE ONLY
G
POTENZA.REGOLAZIONE

H1 [INTERRUT, CONTROLLO ING AUDIO/VIDEO, USCITA AUDIO/VIDEO] **H2** [RECEIVER DEI COMANDI A DISTANZA]

Cir. Stamp. H2 IC951 BX1387

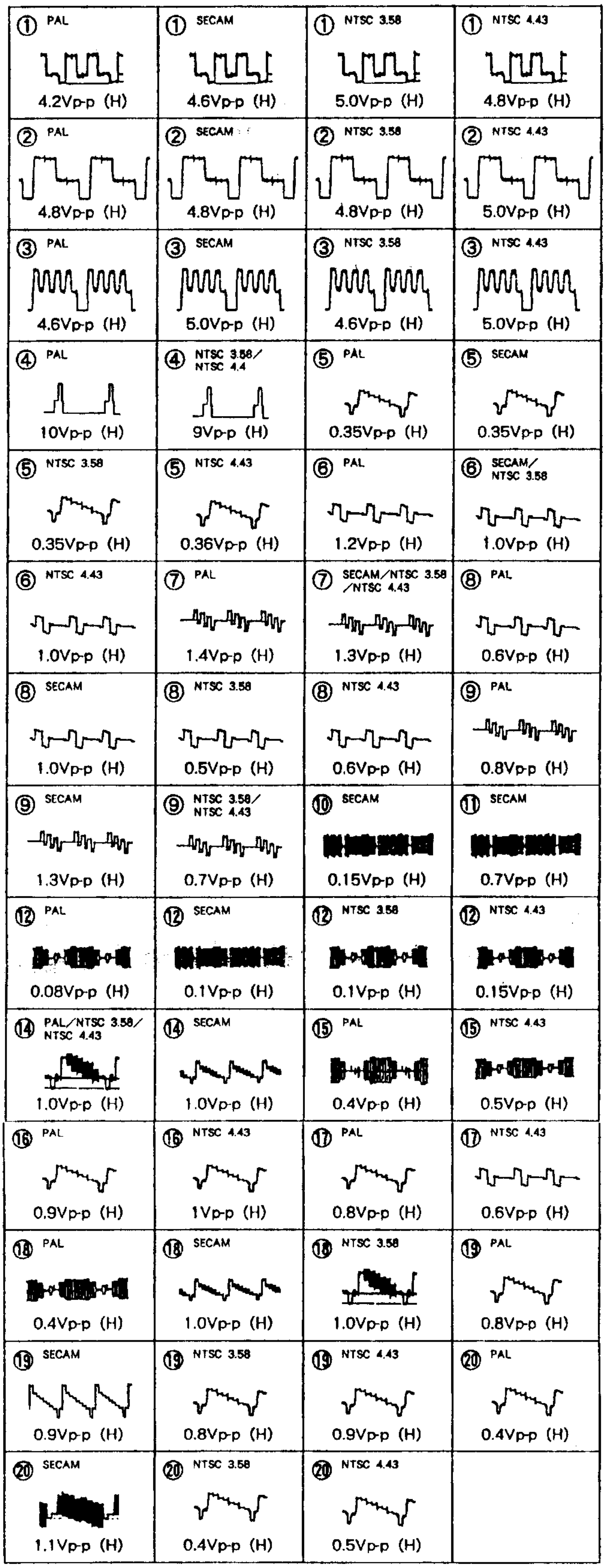


Cir. Stamp. K IC1251/1261 TDA2050

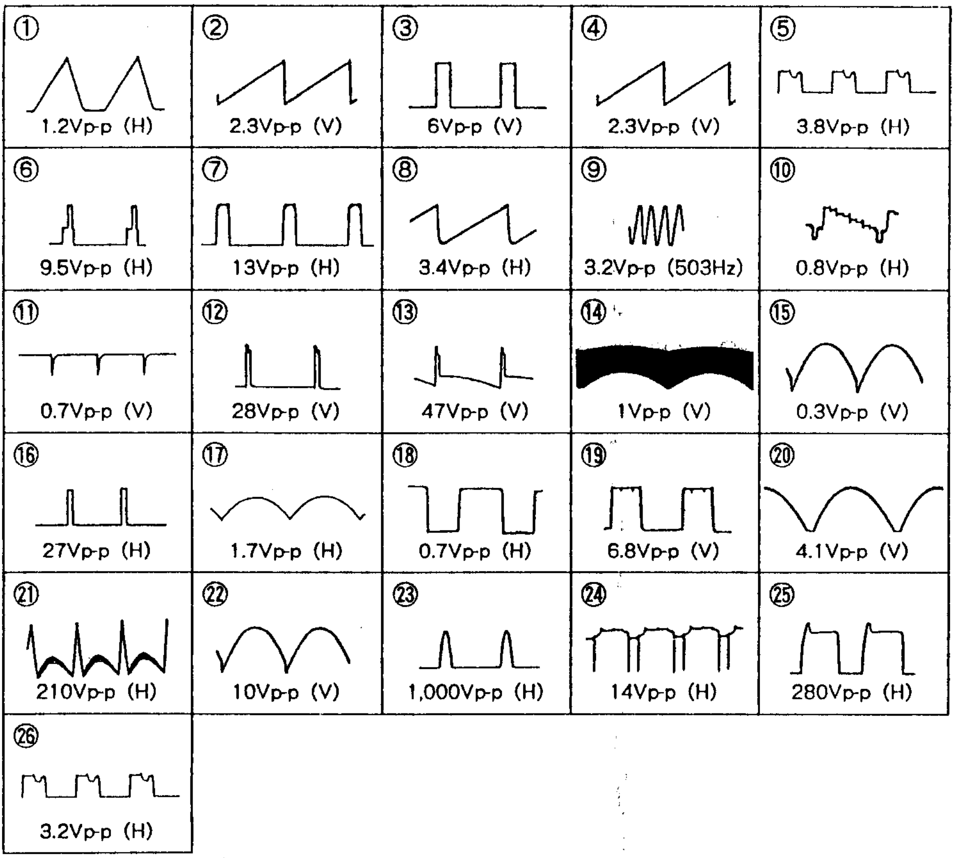


B	IC301	TDA4580-V4	PROCESSO VIDEO
	IC302	TDA8442-N3	CONVERTITORE DIGITATALE/ANALOGICO
	IC303	TDA4660	1H LINE DI RIIARDO
	IC304	TDA4650	PROCESSO COLORE
	IC306	HCF-4052BEY	INTERRUT Y/C
	IC308	CXA20061	INTERRUZIONE Y
	IC312	2BX1650-21	FILTRO DI ACCOPPIAMENTO
	IC1310	HIC2110	INTERRUT Y
	Q301	2SC2412K	+ANNULLAMENTO CANALE
	Q302	2SC2412K	INTERRUT INDICATORE SCHERMO
	Q303	2SC2412K	INTERRUT MUTO IMAGINE FAS
	Q304	2SC2412K	INTERRUT INDICATORE SCHRMO
	Q305	DTA144EK	INTERRUT MUTO
	Q306	2SC2412K	INTERRUT STTESA
	Q307	2SC2412K	LIMITATORE DI LUMINOSITA AUTOMATICO
	Q308	DTC124EK	MUTO
	Q310	DTC124EK	INTERRUT SECAM
	Q311	DTC124EK	INTERRUT SECAM
	Q312	2SA1037K	INTERRUT A/C
	Q313	2SC2412K	INTERRUT A/C
	Q320	2SC2412K	BUFFER TONALITA
	Q321	2SA1037K	OROLOGIO AMPLIFICATORE 3
	Q322	2SA1037K	OROLOGIO AMPLIFICATORE 2
	Q323	2SC2412K	OROLOGIO AMPLIFICATORE 1
	Q324	2SC2412K	OROLOGIO BUFFER
	Q327	2SA1037K	USCITA Y
	Q328	2SA1037K	ING VIDEO
	Q329	2SA1037K	ING Y
	Q330	2SC2412K	BUFFER VIDEO
	Q331	2SA1037K	USCITA C
	Q332	2SA1037K	ING C
	Q333	DTC124EK	INTERRUT Y/C
	Q334	DTC124EK	INTERRUT Y
	Q335	2SC2412K	INTERRUT SECAM
	Q336	2SC2412K	INTERRUT NTSC (3.58)
	Q337	2SC2412K	INTERRUT NTSC (4.43)
	Q338	2SA1037K	Y BUFFER
	Q339	2SC2412K	Y BUFFER
	Q340	2SC2412K	Y BUFFER
	Q341	2SC2412K	INTERRUT SECAM TRAP
	Q342	2SC2412K	INTERRUT NTSC TRAP
	Q343	2SC2412K	USCITA C
	Q344	2SC2412K	INTERRUT SECAM
	Q345	2SC2412K	INTERRUT PAL/SECAM
	Q346	2SC2412K	ING Y
	Q347	2SC2412K	INTERRUT PAL
	Q348	2SC2412K	INTERRUT DI TRAPPOLA NTSC 3.58
	Q1301	DTC124EK	BUFF Y
	Q1302	2SC2412K	USCITA Y
	Q1303	2SC2412K	MUTO VM
	D301	1SS133	ATTESA AT ACO
	D302	1SS133	ATTESA AT ACO
	D303	1SS133	ATTESA AT ACO
	D304	1SS133	PROTEZIONE
	D305	1SS133	PROTEZIONE
	D306	ERA81-004	PROTEZIONE
	D307	RD11ESB3	PROTEZIONE
	D308	1SS133	ARRESTO ANDARE INDIETRO
	D309	1SS133	PROTEZIONE
	D310	RD11ESB3	PROTEZIONE
	D311	RD11ESB3	PROTEZIONE
	D312	RD11ESB3	PROTEZIONE
	D313	1SS133	PROTEZIONE
	D314	1SS133	PROTEZIONE
	D315	1SS133	PROTEZIONE
	D316	1SS133	PROTEZIONE
	D317	1SS133	PROTEZIONE
	D318	1SS133	PROTEZIONE
	D319	1SS133	PROTEZIONE
	D320	1SS133	PROTEZIONE
	D321	RD5.6ESB3	REG
	D322	1SS133	CORRECT
	D323	1SS133	CORRECT
	D324	DA204K	PROTEZIONE
	D325	DA204K	PROTEZIONE
	D326	DA204K	PROTEZIONE
	D327	1SS119	PROTEZIONE
	D329	RD3.0NB1	PROTEZIONE
	D330	1SS133	POLARIZZAZIONE
	D331	1SS133	INTERRUT Y/C
	D332	1SS133	INTERRUT Y/C
	D333	1SS133	INTERRUT SECAM
	D334	1SS133	INTERRUT SECAM
	D335	1SS133	INTERRUT PAL
	D336	1SS133	INTERRUT CORRECT
	D337	1SS133	INTERRUT CORRECT
	D338	1SS133	INTERRUT CORRECT

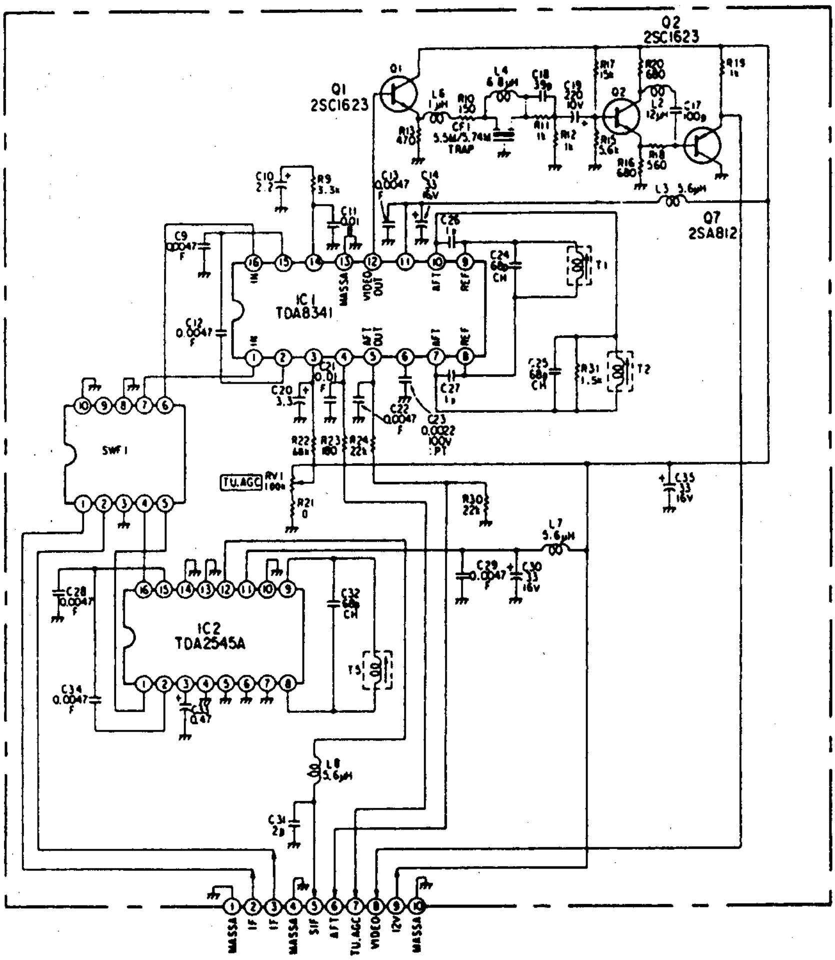
Clr. Stamp B

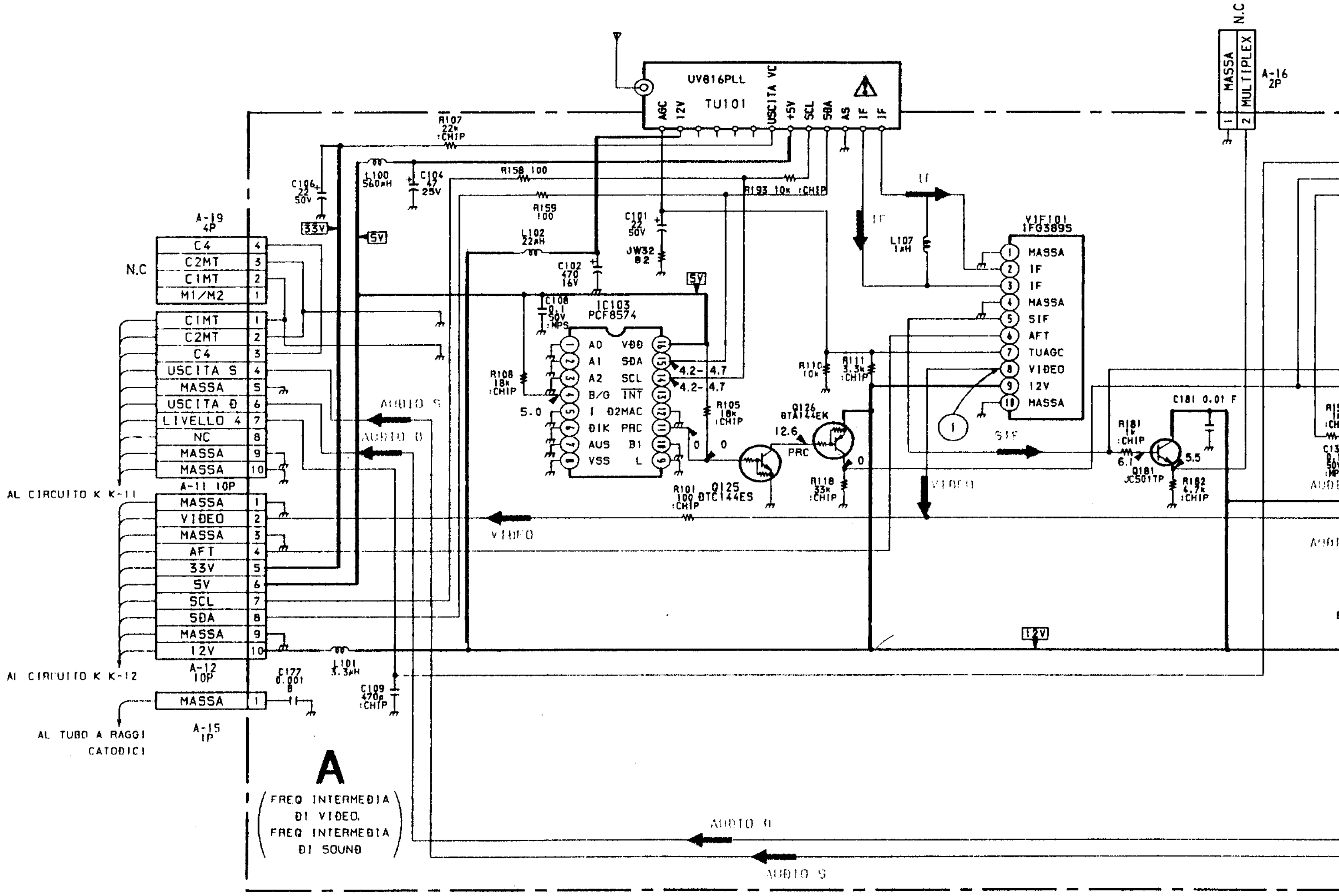


Clr. Stamp D

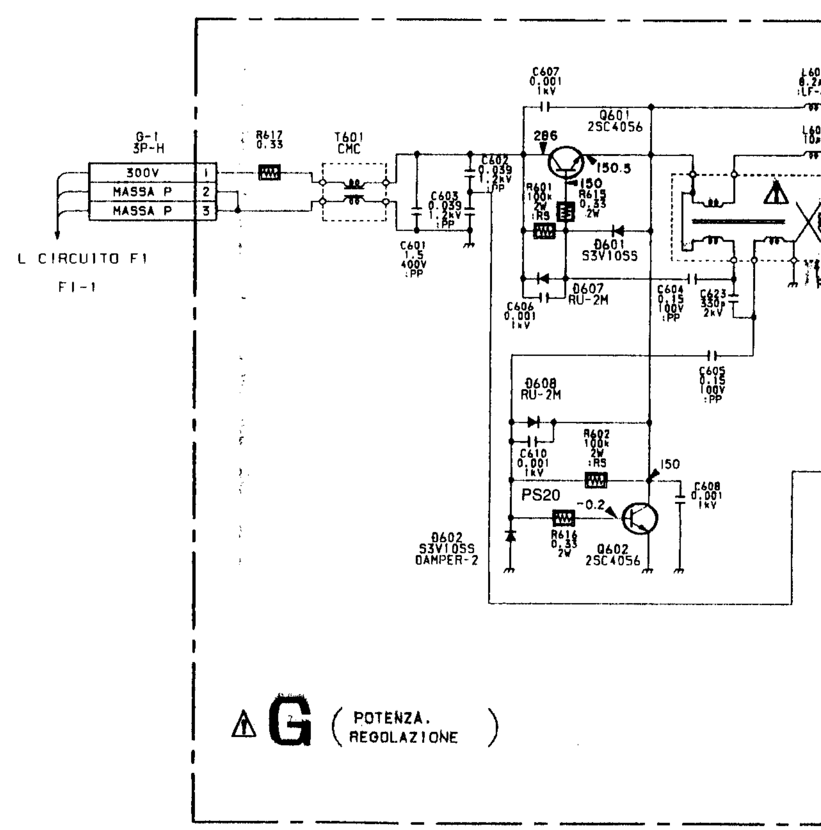


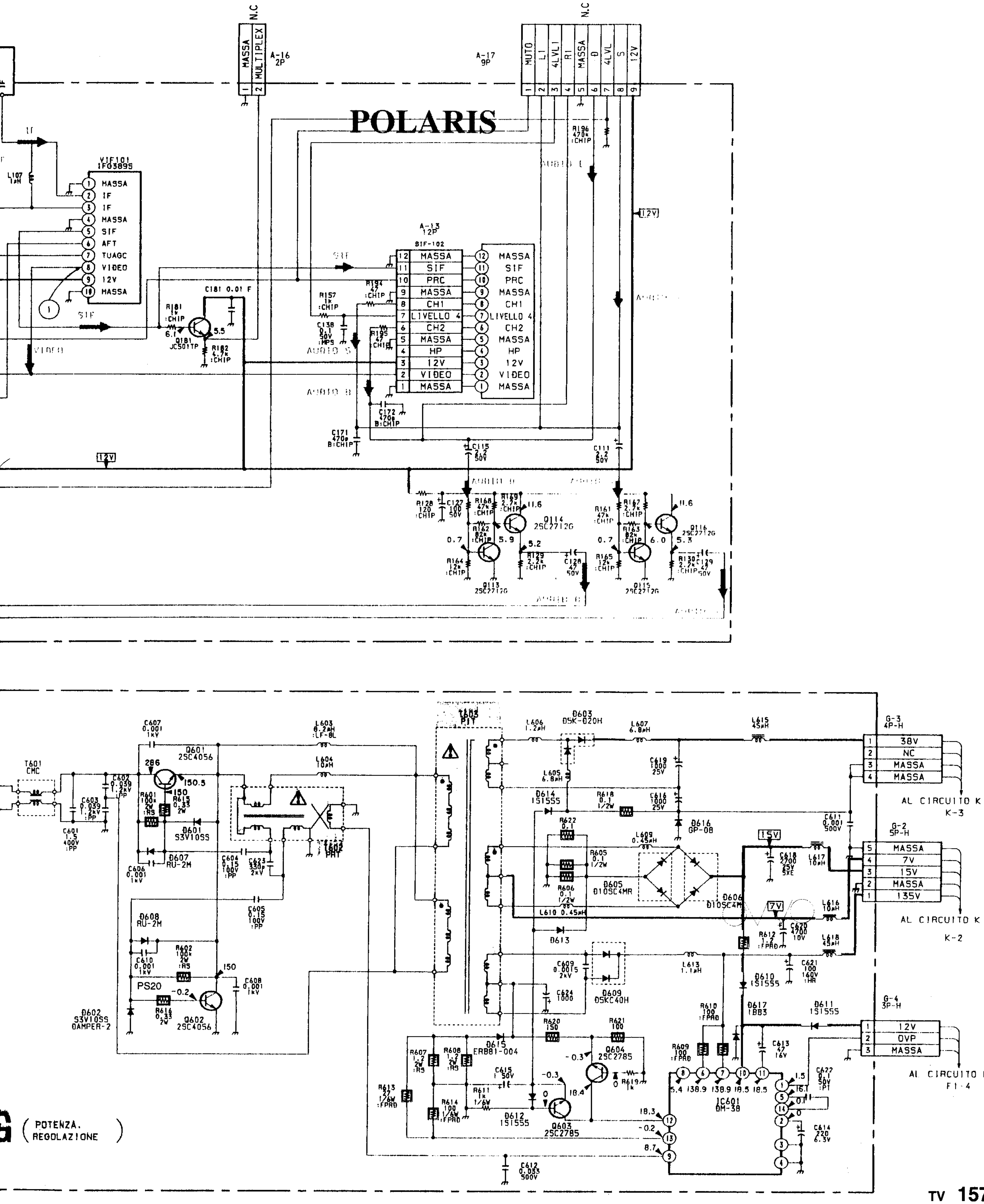
CIRCUITO STAMPATO A VIF101 IFG-389S



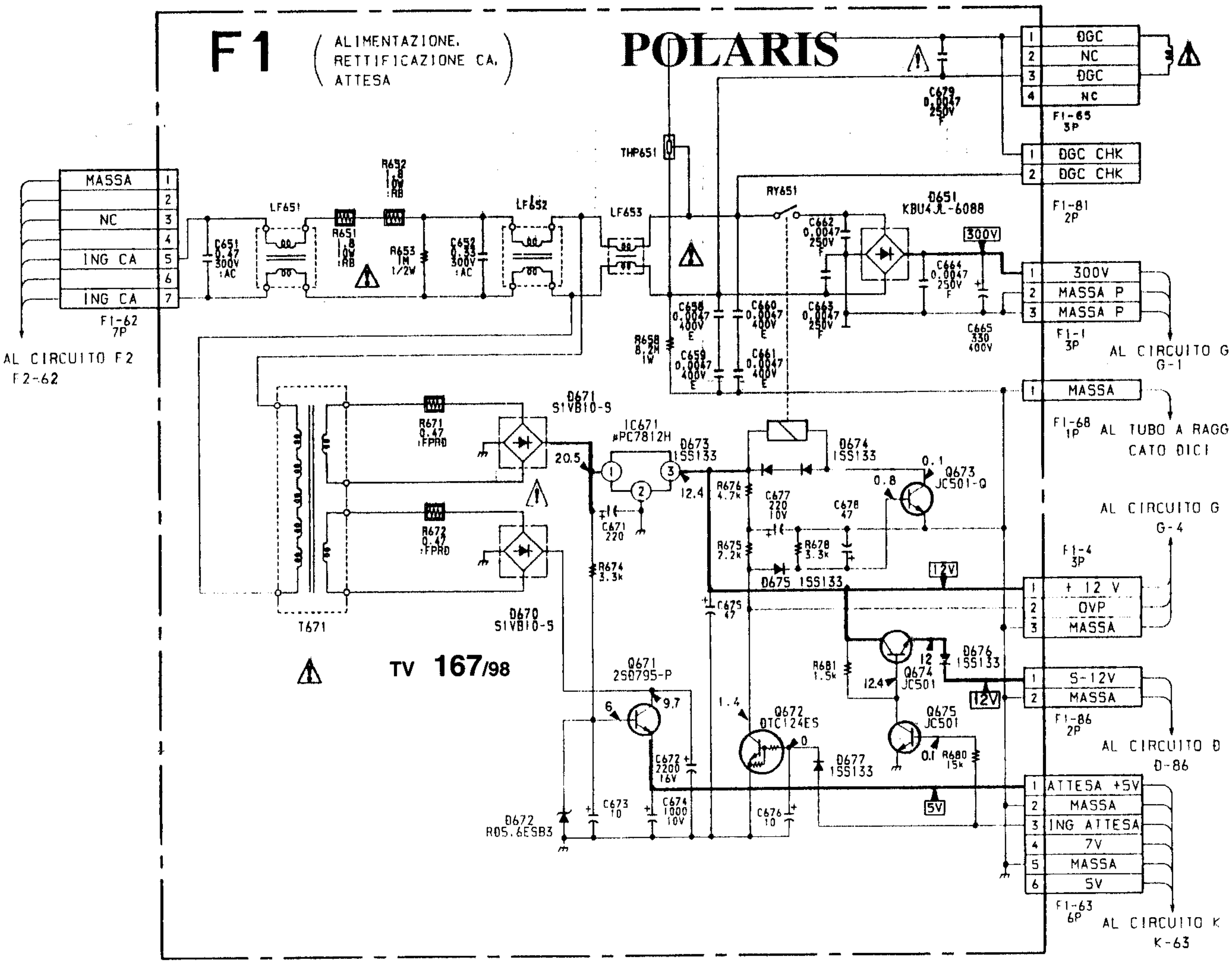


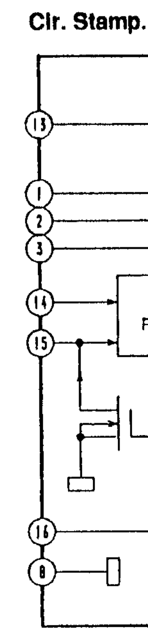
OST1 ¥078 B-¥SS29→E ET.>-A.. .P1

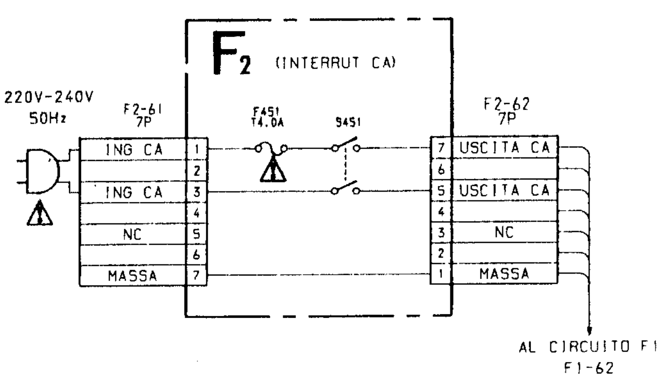



POLARIS
A-16 2P
MASSA
MULTIPLEX
A-17 9P
MUTO
L1
4LVL1
R1
MASSA
D
4LVL
S
12V
VIF101 IFG3895
A-13 12P
SIF-102
MASSA
SIF
PRC
CH1
LIVELLO 4
CH2
HP
VIDEO
G-3 4P-H
38V
NC
AL CIRCUITO K
K-3
G-2 5P-H
7V
15V
135V
AL CIRCUITO K
K-2
G-4 3P-H
OVP
AL CIRCUITO F1
F1-4
IC601 DM-38
G (POTENZA. REGOLAZIONE)

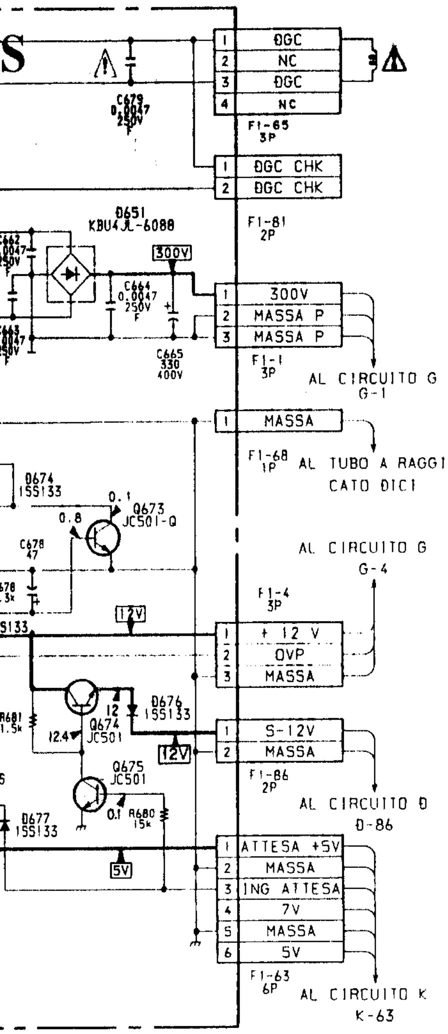
A	IC103
	Q113
	Q114
	Q115
	Q116
	Q125
	Q126
	Q181







F1	IC671	μ PC7812H	REG 12V
	Q671	2SD795-P	INTERRUT ATTESA
	Q672	JC501-Q	INTERRUT ATTESA
	Q673	JC501-Q	PILOTA RELE
	Q674	IC501	REG 12V
	Q675	IC501	ARRESTO
	D651	KBU4JL-6088	RETTIFICAZIONE PRINCIPALE
	D670	S1VB10-S	RETTIFICAZIONE 5V
	D671	S1VB10-S	RETTIFICAZIONE 12V
	D672	RD5.6ESB2	SMORZATORE RELE
	D673	1SS133	SMORZATORE RELE
	D674	1SS133	SMORZATORE RELE
	D675	1SS133	ARRESTO
	D676	1SS133	ARRESTO



A	IC103	PCF8574	ALLAGATOIO ING/USCITA
	Q113	2SC2712G	PREAMPLIFCATORE SUONO D-1
	Q114	2SC2712G	PREAMPLIFCATORE SUONO D-2
	Q115	2SC2712G	PREAMPLIFCATORE SUONO S-2
	Q116	2SC2712G	PREAMPLIFCATORE SUONO S-2
	Q125	DTC144ES	INTERRUT MUTO-1
	Q126	DTA144ES	INTERRUT MUTO-2
	Q181	JC501TP	BUFFER NICAM

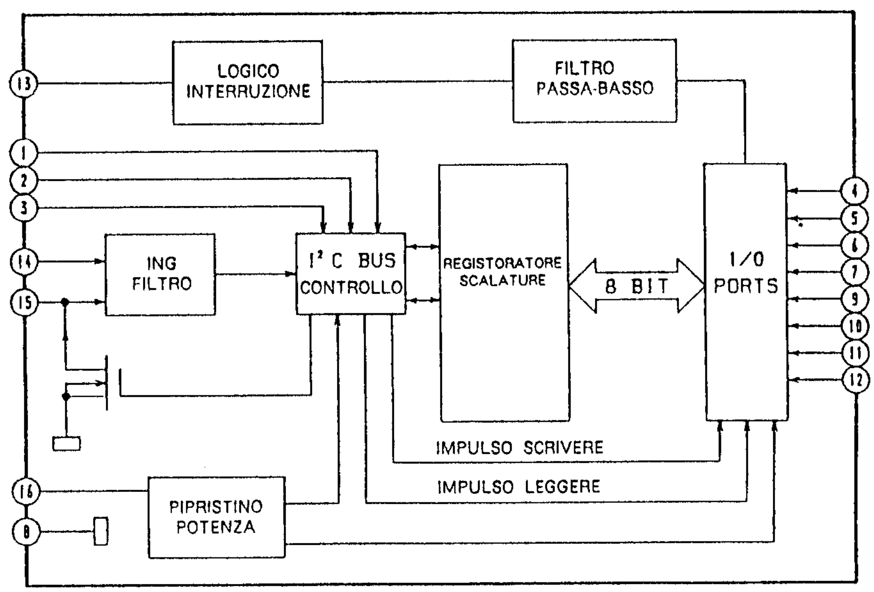
Clr. Stamp A

①

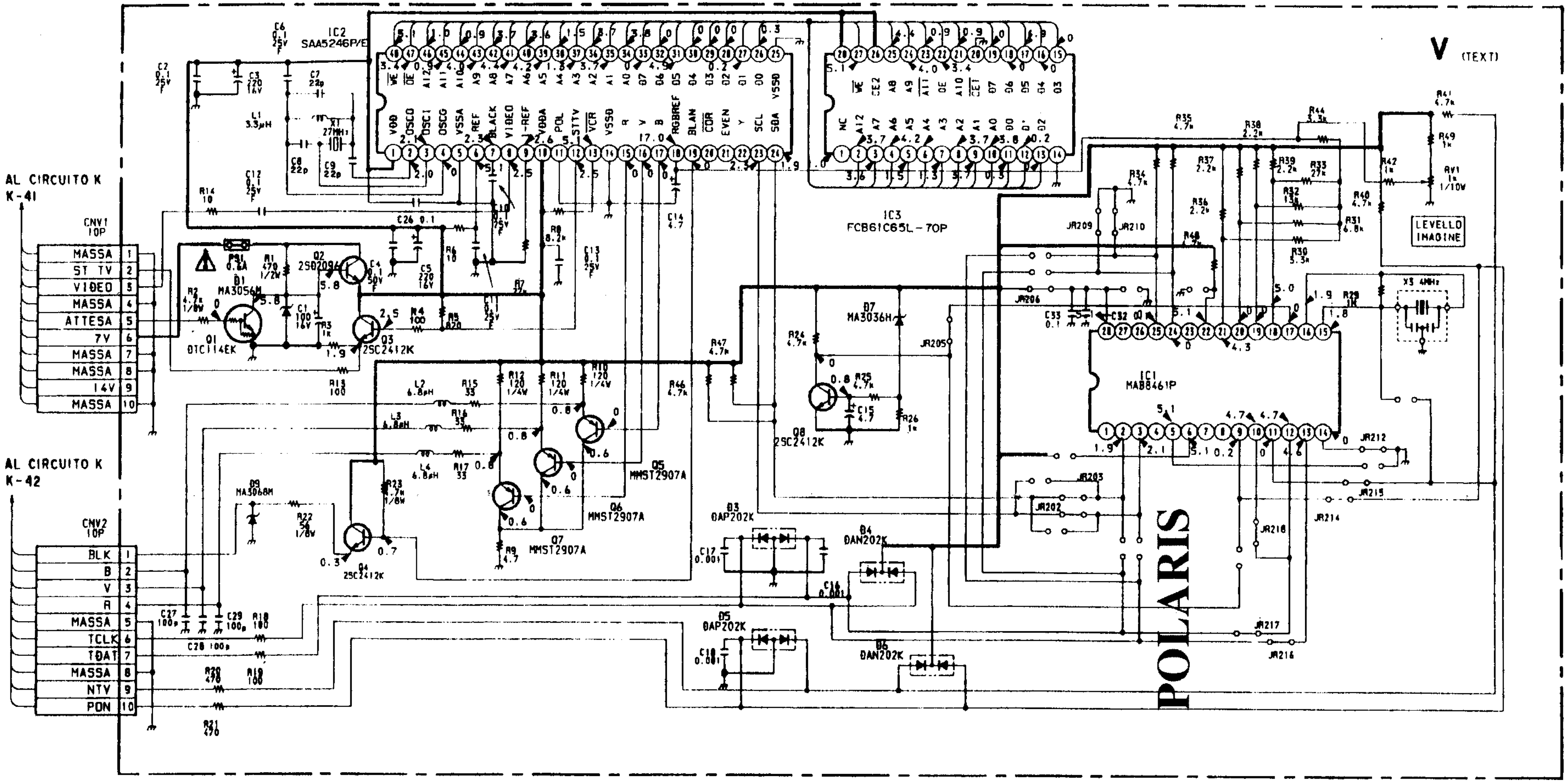


1.1Vp-p (H)

Clr. Stamp. A IC103 PCF8574

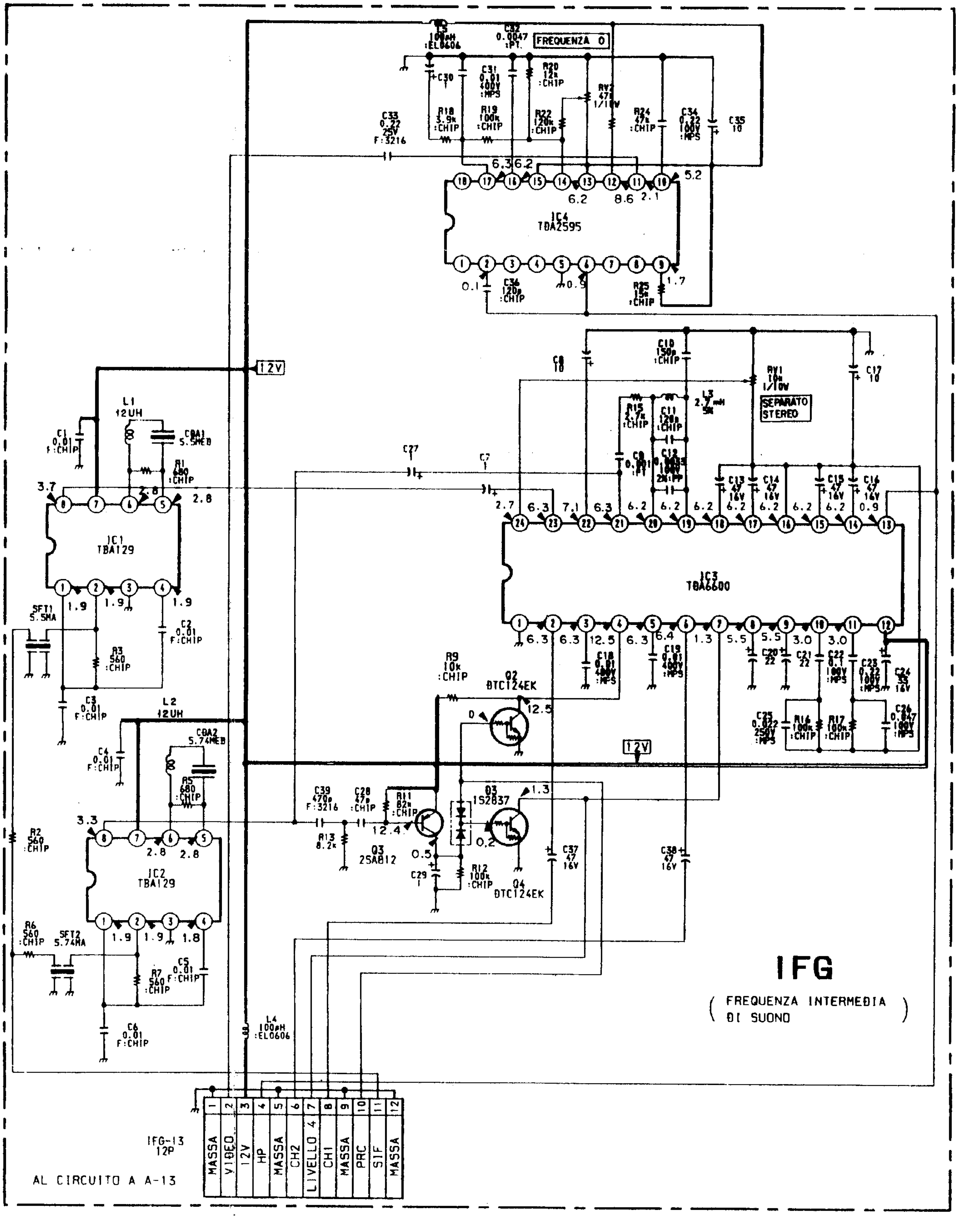


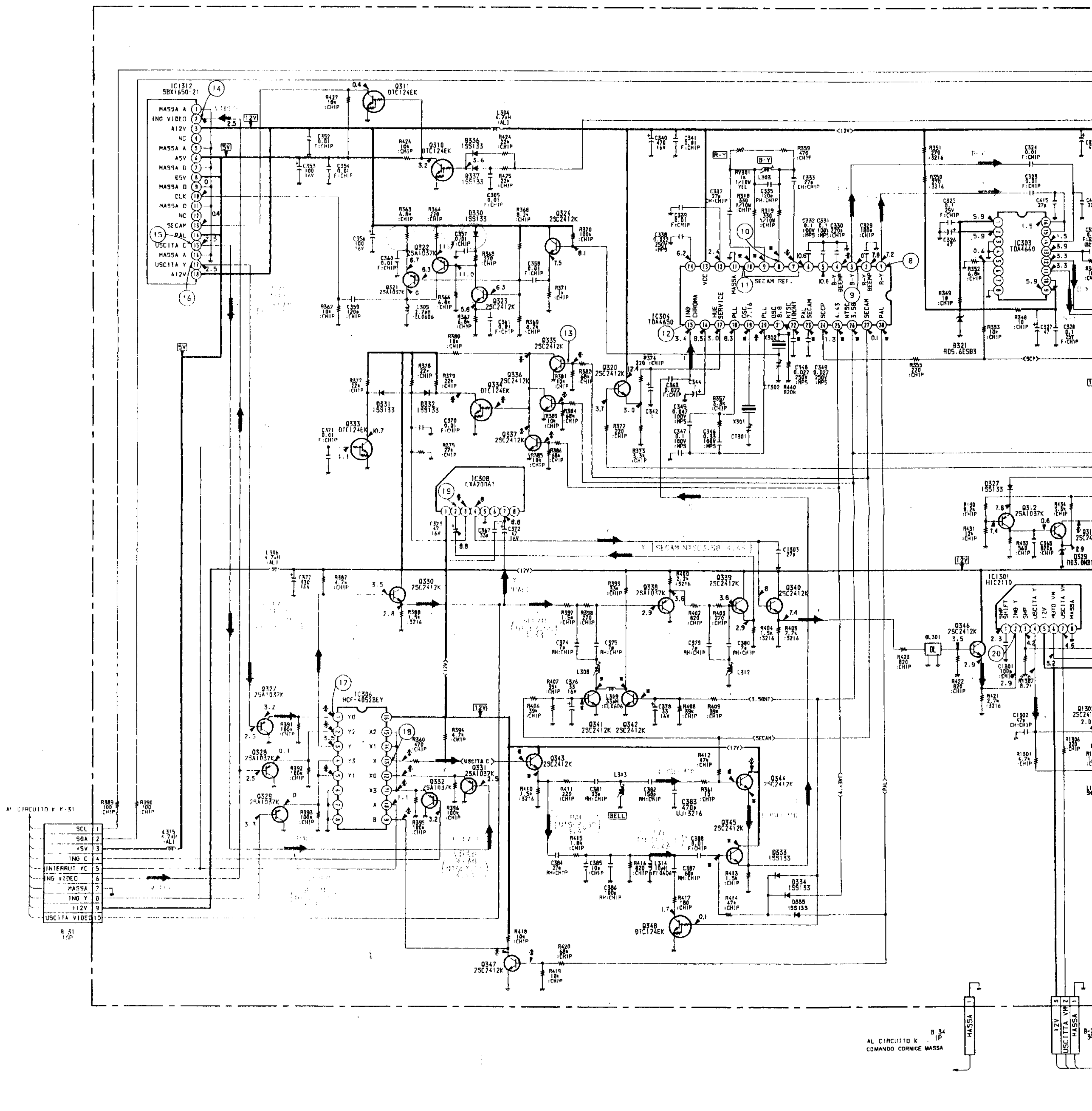
671	μ PC7812H	REG 12V
671	2SD795-P	INTERRUT ATTESA
672	JC501-Q	INTERRUT ATTESA
673	JC501-Q	PILOTA RELE
674	IC501	REG 12V
675	IC501	ARRESTO
651	KBU4JL-6088	RETTIFICAZIONE PRINCIPALE
670	S1VB10-S	RETTIFICAZIONE 5V
671	S1VB10-S	RETTIFICAZIONE 12V
672	RD5.6ESB2	SMORZATORE RELE
673	1SS133	SMORZATORE RELE
674	1SS133	SMORZATORE RELE
675	1SS133	ARRESTO
676	1SS133	ARRESTO

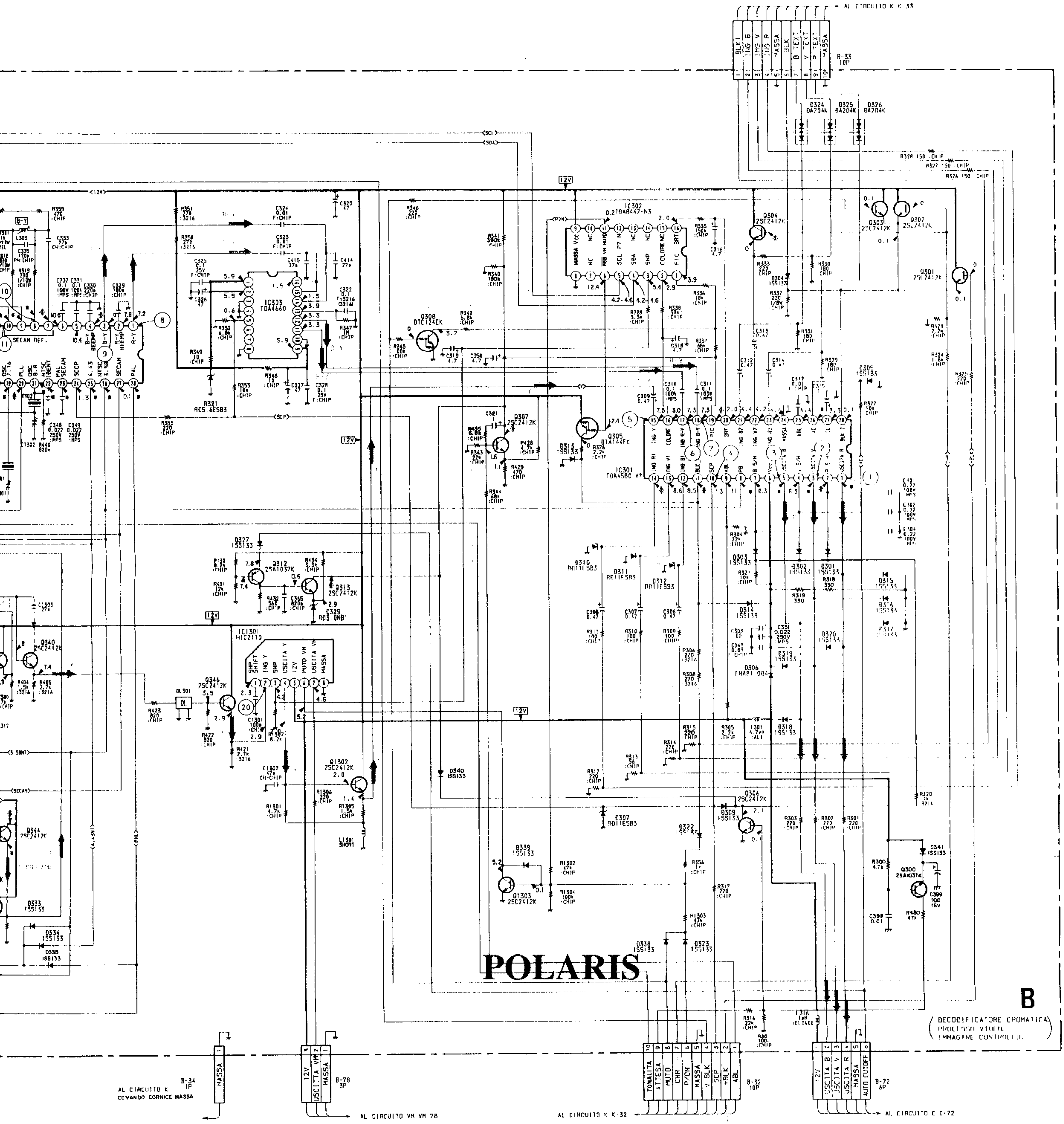

V (TEXT)
AL CIRCUITO K
K-41
CNV1
10P
MASSA
ST TV
VIDEO
MASSA
ATTESA
7V
MASSA
MASSA
14V
MASSA
AL CIRCUITO K
K-42
CNV2
10P
BLK
B
V
R
MASSA
TCLK
TDAT
MASSA
NTV
PON
IC2
SAA5246P/E
IC3
FCB61C65L-70P
IC1
MAB8461P
Q1
DTC114EK
Q2
2SD2096
Q3
2SC2412K
Q4
2SC2412K
Q5
MMST2907A
Q6
MMST2907A
Q7
MMST2907A
Q8
2SC2412K
D1
MA3056M
D7
MA3036H
D9
MA3068M
D3
DAP202K
D4
DAN202K
D5
DAP202K
D6
DAN202K
X1
27MHz
X3 4MHz
LEVELLO
IMAGINE
RV1
1k
1/10W
POLARIS

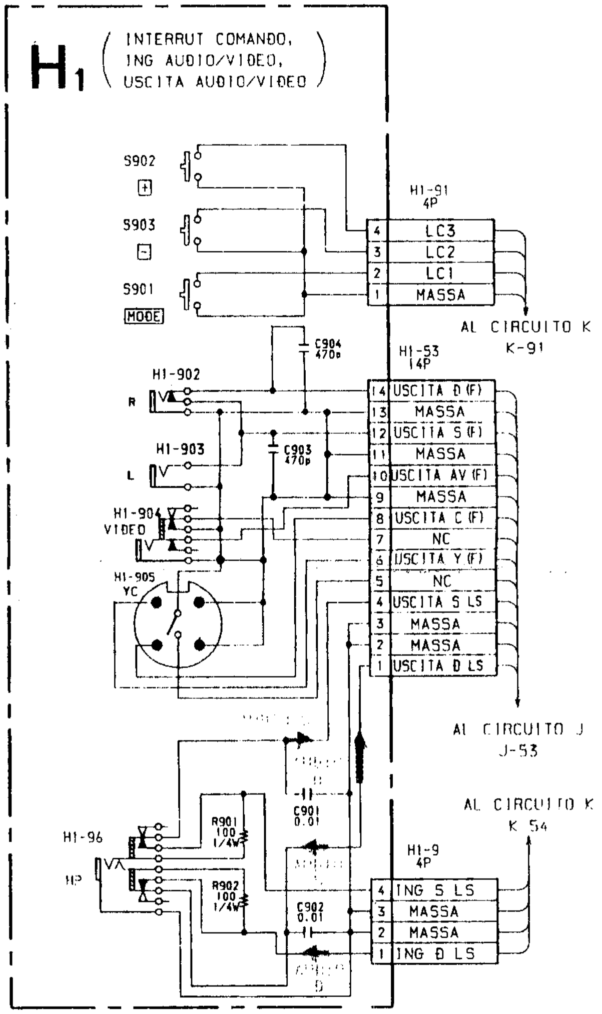
CIRCUITO STAMPATO A
SIF102 IFG-5.5S

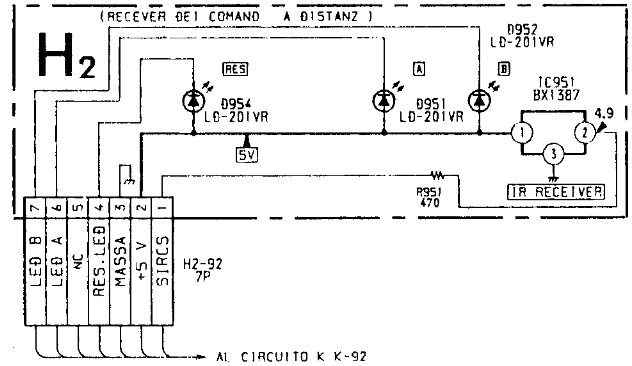
SCHEMA ELETTRICO DEL GRUPPO ALTA FREQUENZA

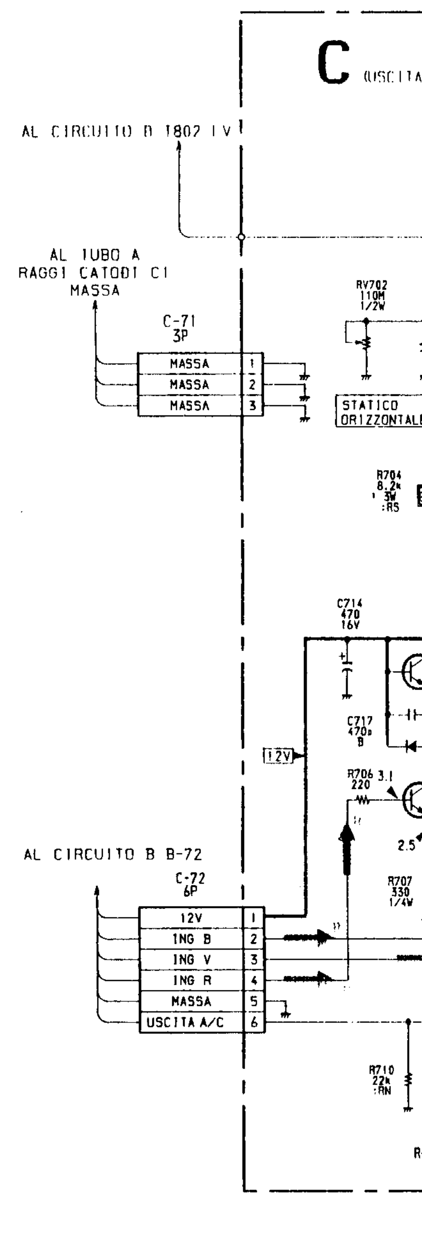




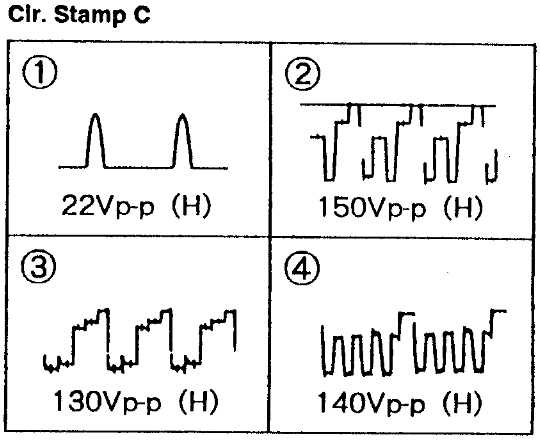

AL CIRCUITO K K-33
BLK1
IMG B
IMG V
IMG R
MASSA
BLK
B TEXT
V TEXT
R TEXT
MASSA
B-33
10P
IC302
TDA8442-N3
IC303
TDA4660
IC301
TDA4580 V7
IC1301
HIC2110
POLARIS
B
DECODIFICATORE CROMATICA
PROCESSO VIDEO
IMMAGINE CONTROLLO
AL CIRCUITO K
COMANDO CORNICE MASSA
B-34
1P
MASSA
12V
USCITTA VM
MASSA
B-78
3P
AL CIRCUITO VM VM-78
TONALITA
ATTESA
MUTO
CHR
P/ON
MASSA
V BLK
SCP
+BLK
ABL
B-32
10P
AL CIRCUITO K K-32
12V
USCITA B
USCITA V
USCITA R
MASSA
AUTO CUTOFF
B-72
6P
AL CIRCUITO C C-72

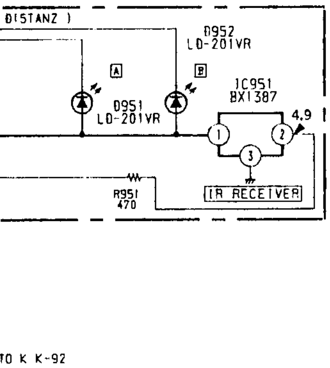

H1
INTERRUT COMANDO,
ING AUDIO/VIDEO,
USCITA AUDIO/VIDEO
S902
S903
S901
MODE
H1-91
4P
4 LC3
3 LC2
2 LC1
1 MASSA
AL CIRCUITO K
K-91
C904
470p
H1-53
14P
H1-902
R
H1-903
L
C903
470p
14 USCITA D (F)
13 MASSA
12 USCITA S (F)
11 MASSA
10 USCITA AV (F)
9 MASSA
8 USCITA C (F)
7 NC
6 USCITA Y (F)
5 NC
4 USCITA S LS
3 MASSA
2 MASSA
1 USCITA D LS
H1-904
VIDEO
H1-905
YC
AL CIRCUITO J
J-53
AL CIRCUITO K
K 54
H1-96
HP
R901
100
1/4W
R902
100
1/4W
C901
0.01
C902
0.01
H1-9
4P
4 ING S LS
3 MASSA
2 MASSA
1 ING D LS


H2
(RECEVER DEI COMANDO A DISTANZ)
D952
LD-201VR
RES
A
B
D954
LD-201VR
D951
LD-201VR
IC951
BX1387
4.9
5V
R951
470
IR RECEIVER
LED B
LED A
NC
RES.LED
MASSA
+5 V
SIRCS
H2-92
7P
AL CIRCUITO K K-92

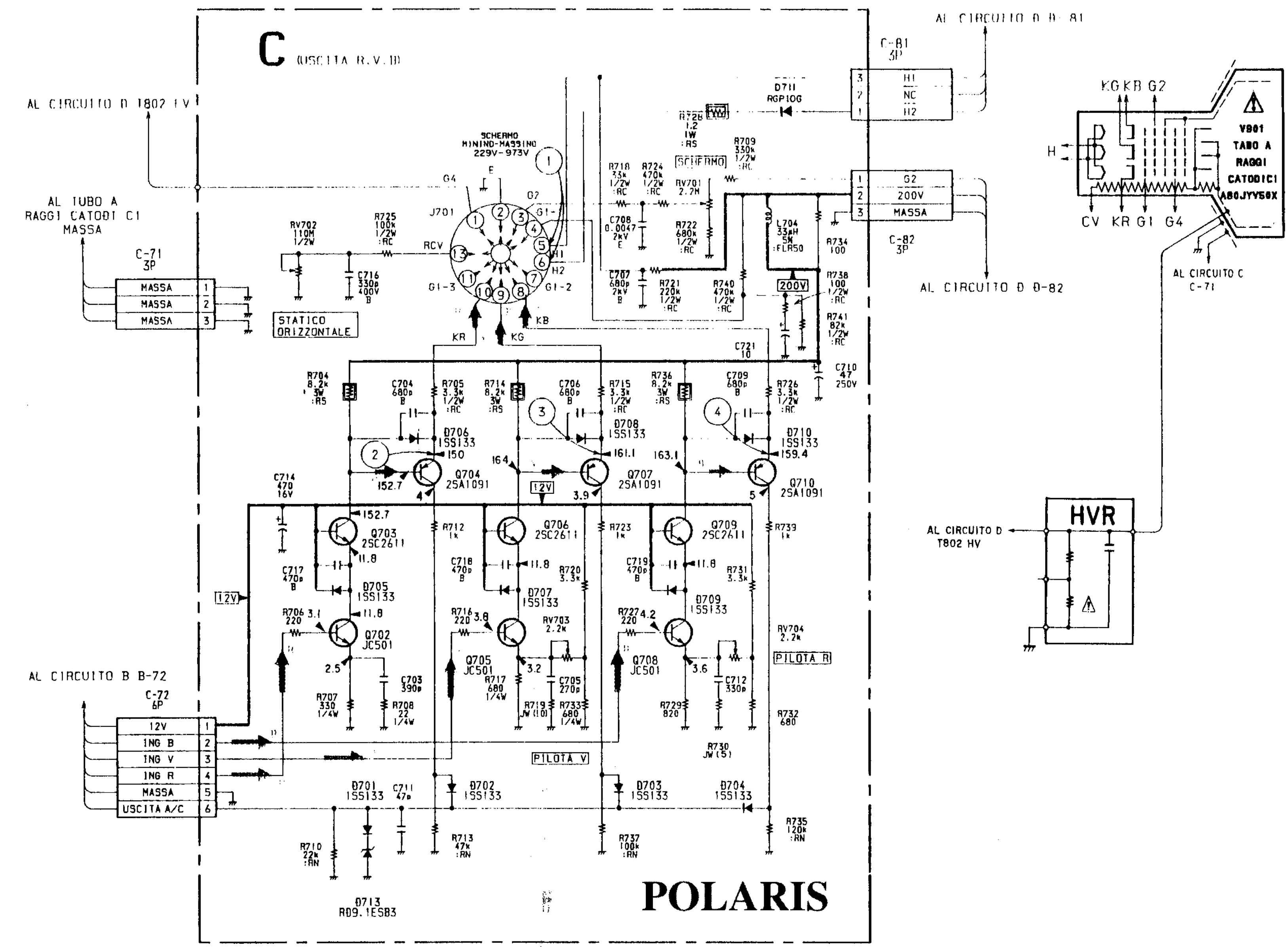

C
AL CIRCUITO B 1802 I V
AL TUBO A
RAGGI CATODI C1
MASSA
C-71
3P
MASSA 1
MASSA 2
MASSA 3
RV702
STATICO
R704
C714
470
16V
C717
470p
12V
R706
220
R707
330
1/4W
AL CIRCUITO B B-72
C-72
6P
12V 1
ING B 2
ING V 3
ING R 4
MASSA 5
USCITA A/C 6
R710
22k

Clr. Stamp C

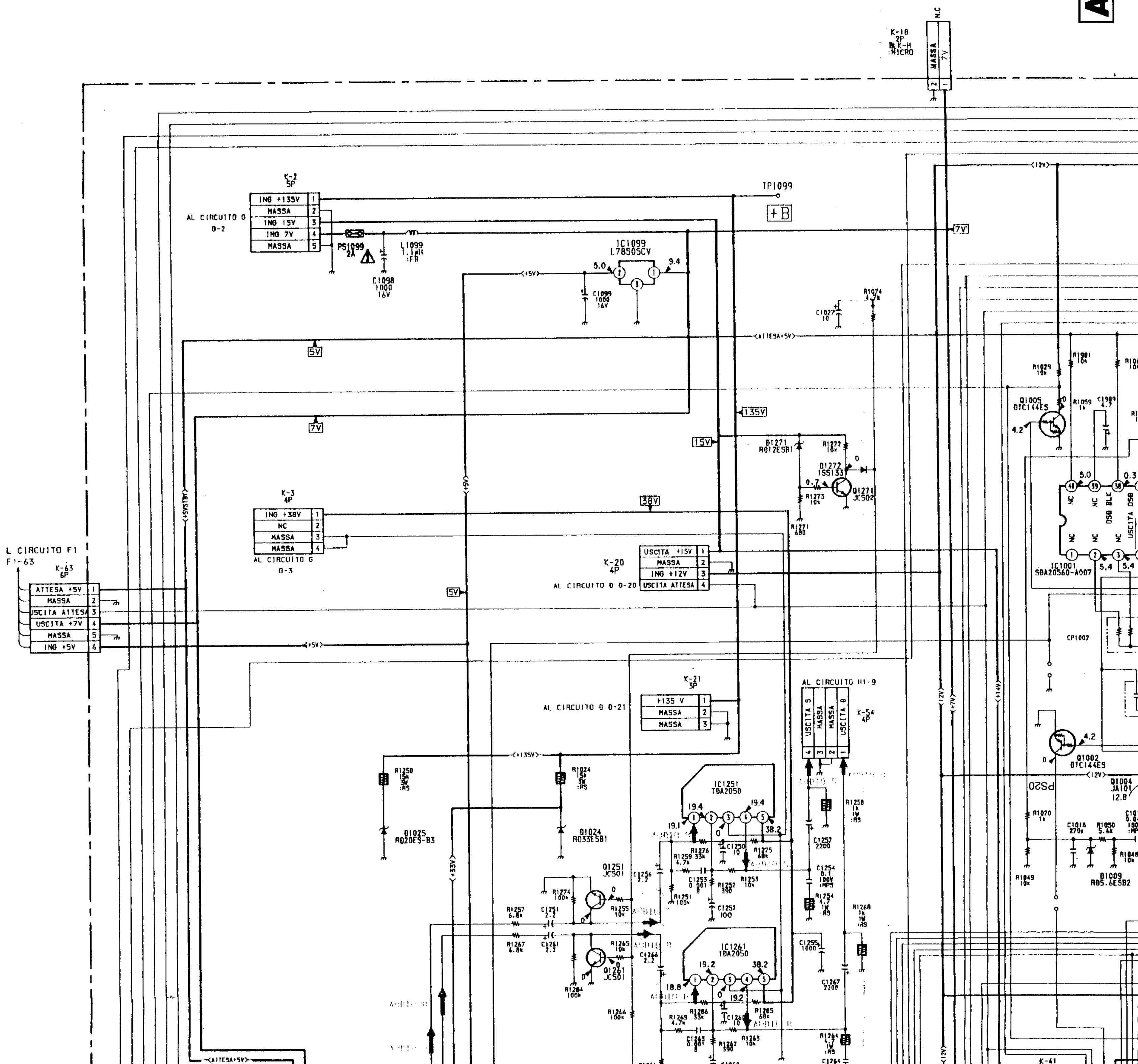

①
22Vp-p (H)
②
150Vp-p (H)
③
130Vp-p (H)
④
140Vp-p (H)



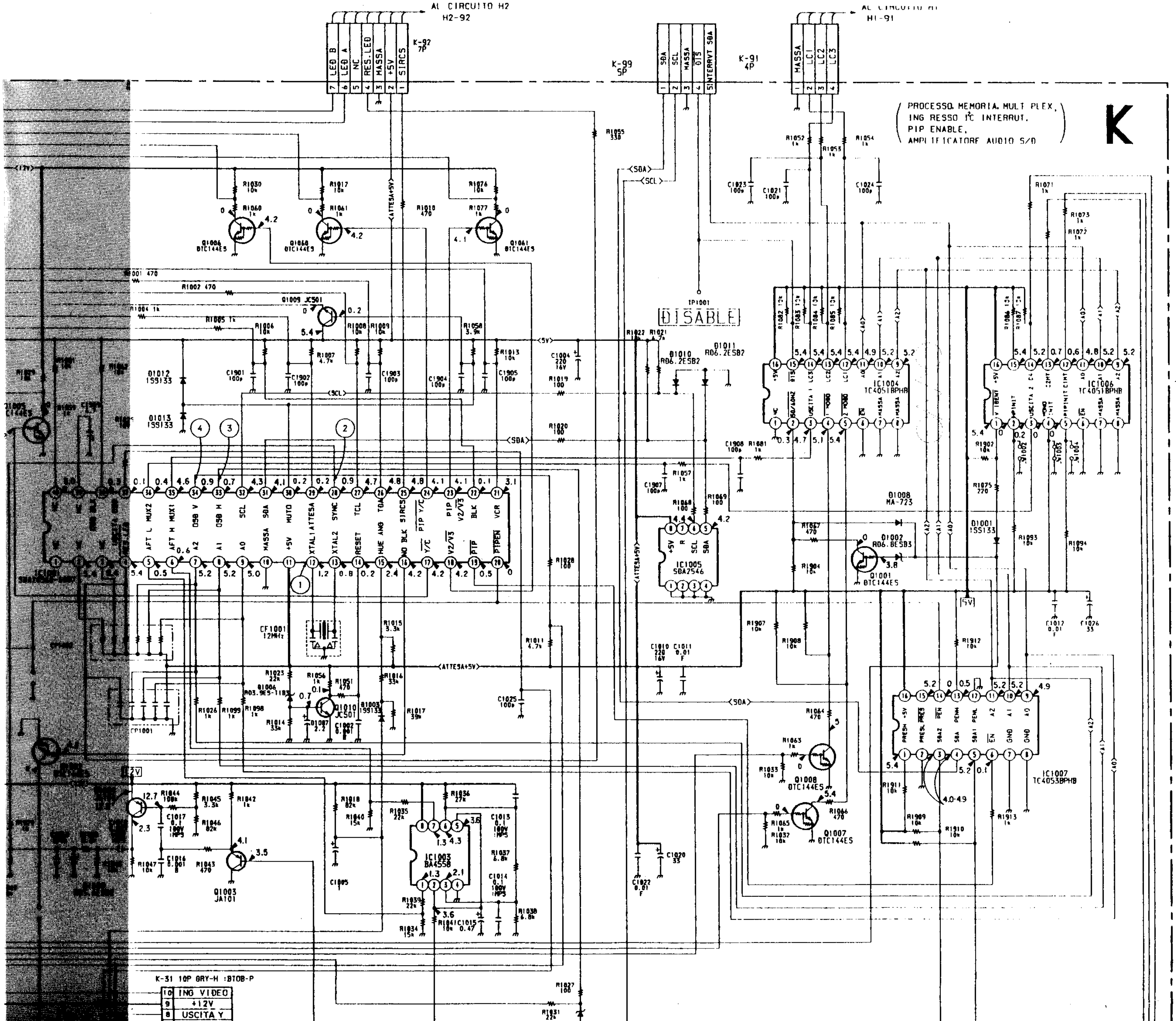
	Q702	2SC2785	AMPL R
	Q703	2SC2611	USCITA R
	Q704	2SA1091	TAGLIO AUTMATICO R
	Q705	2SC2785	AMPL V
	Q706	2SC2611	USCITA V
	Q707	2SA1091	TAGLIO AUTMATICO V
	Q708	2SC2785	AMPL B
	Q709	2SC2611	USCITA B
	Q710	2SA1091	TAGLIO AUTMATICO B
	D701	1SS119	PROTEZIONE
C	D702	1SS119	PROTEZIONE
	D703	1SS119	PROTEZIONE
	D704	1SS119	PROTEZIONE
	D705	1SS119	PROTEZIONE
	D706	1SS119	PROTEZIONE
	D707	1SS119	PROTEZIONE
	D708	1SS119	PROTEZIONE
	D709	1SS119	PROTEZIONE
	D710	1SS119	PROTEZIONE
	D711	RGP10G	RETTIFICAZIONE IMPULSO ORRIZZONTALE
	D713	RD9.1ESB3	PROTEZIONE

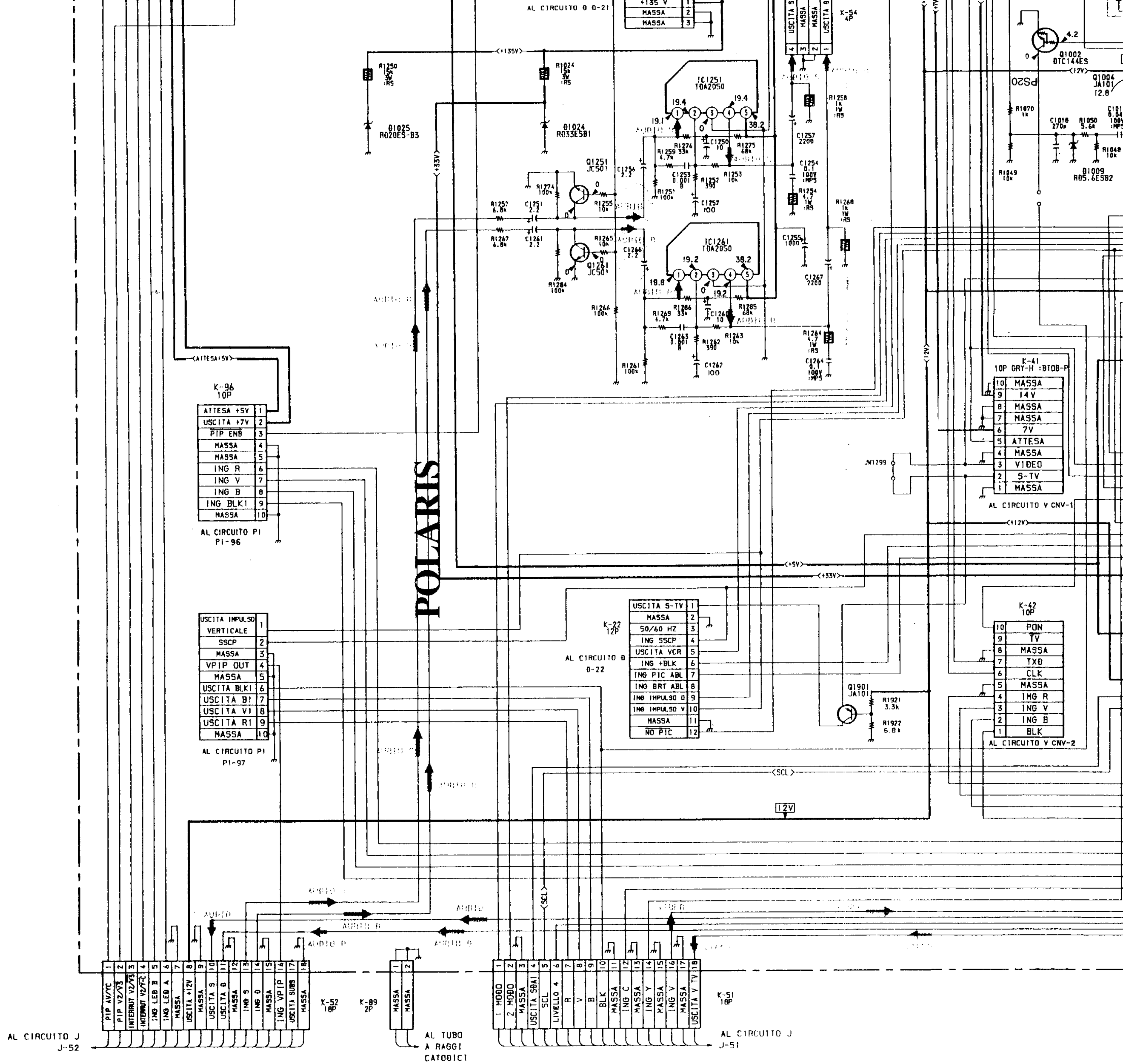


A

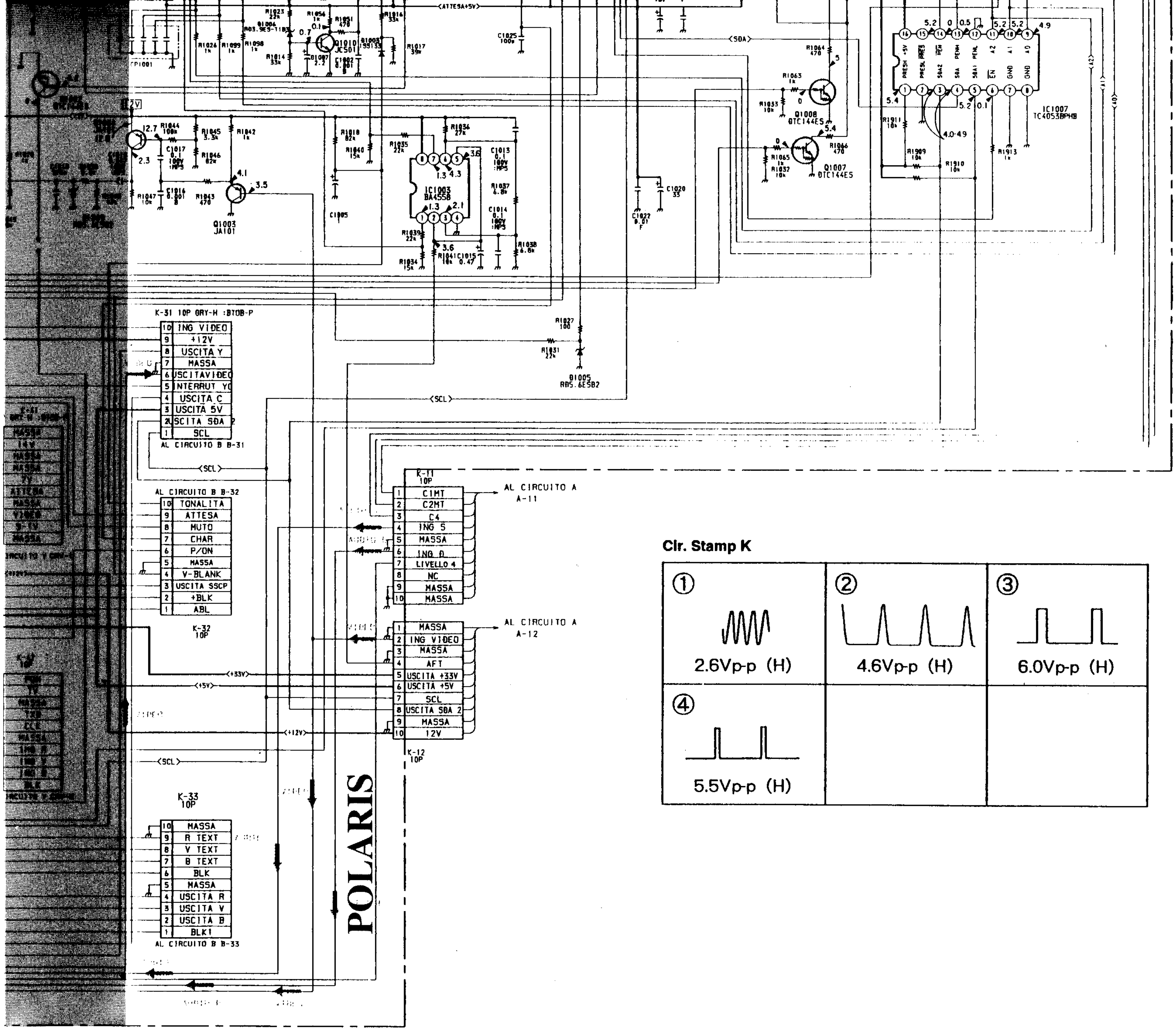

K-18
2P
BLK-H
:MICRO
MASSA
7V
N.C
K-2
5P
AL CIRCUITO G
G-2
ING +135V
MASSA
ING 15V
ING 7V
MASSA
PS1099
2A
L1099
C1098
1000
16V
TP1099
+B
IC1099
L78S05CV
7V
5V
135V
15V
38V
D1271
D1272
1SS133
Q1271
K-3
4P
ING +38V
NC
MASSA
MASSA
AL CIRCUITO G
G-3
L CIRCUITO F1
F1-63
K-63
6P
ATTESA +5V
MASSA
USCITA ATTESA
USCITA +7V
MASSA
ING +5V
K-20
4P
USCITA +15V
MASSA
ING +12V
USCITA ATTESA
AL CIRCUITO D D-20
K-21
3P
+135 V
MASSA
MASSA
AL CIRCUITO D D-21
AL CIRCUITO H1-9
USCITA S
MASSA
MASSA
USCITA D
K-54
4P
IC1251
TDA2050
IC1261
TDA2050
Q1251
Q1261
D1025
D1024
Q1005
DTC144ES
IC1001
SBA20560-A007
CP1002
Q1002
DTC144ES
Q1004
D1009
K-41

A

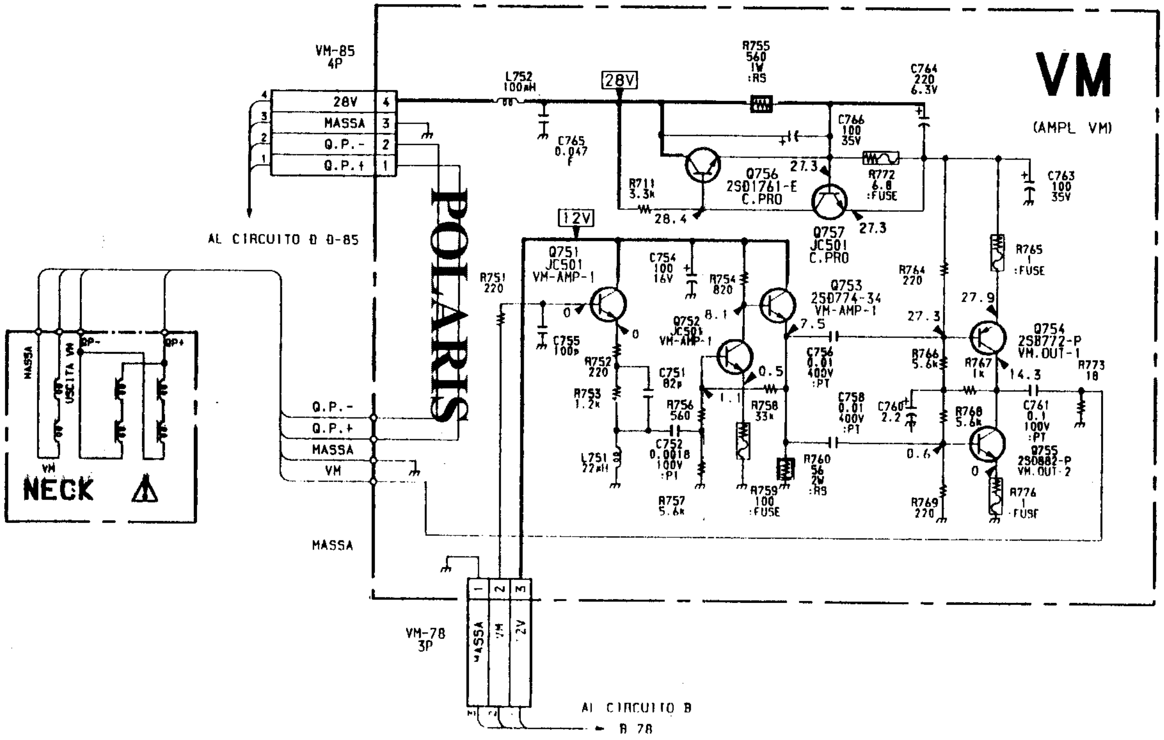

AL CIRCUITO H2
H2-92
K-92
7P
LED B
LED A
NC
RES.LED
MASSA
+5V
SIRCS
K-99
5P
SDA
SCL
MASSA
DIS
INTERRVT SDA
K-91
4P
AL CIRCUITO H1
H1-91
MASSA
LC1
LC2
LC3
PROCESSO, MEMORIA, MULT PLEX,
ING RESSO I²C INTERRUT,
PIP ENABLE,
AMPLIFICATORE AUDIO S/D
K
DISABLE
TP1001
Q1006
DTC144ES
Q1068
DTC144ES
Q1061
DTC144ES
Q1009 JC501
IC1004
TC4051BPHB
IC1006
TC4051BPHB
IC1005
SDA2546
Q1008
MA-723
Q1002
R06.8ESB3
Q1001
DTC144ES
CF1001
12MHz
IC1007
TC4053BPHB
Q1008
DTC144ES
Q1007
DTC144ES
IC1003
BA4558
Q1003
JA101
Q1010
JC501
K-31 10P BRY-H :BTOB-P
ING VIDEO
+12V
USCITA Y

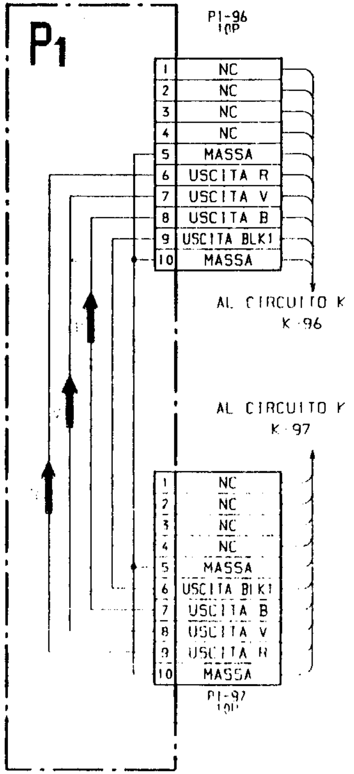


POLARIS
AL CIRCUITO 0 0-21
+135 V
MASSA
IC1251 TDA2050
IC1261 TDA2050
Q1251 JC501
Q1261 JC501
D1025 RD20ES-B3
D1024 RD33ESB1
K-54 4P
Q1002 DTC144ES
Q1004 JA101
D1009 RD5.6ESB2
K-96 10P
ATTESA +5V
USCITA +7V
PIP ENB
ING R
ING V
ING B
ING BLK1
AL CIRCUITO P1 P1-96
K-41 10P GRY-H :BT0B-P
14V
7V
ATTESA
VIDEO
S-TV
AL CIRCUITO V CNV-1
USCITA IMPULSO VERTICALE
SSCP
VPIP OUT
USCITA BLK1
USCITA B1
USCITA V1
USCITA R1
AL CIRCUITO P1 P1-97
K-22 12P
AL CIRCUITO 0 0-22
USCITA S-TV
50/60 HZ
ING SSCP
USCITA VCR
ING +BLK
ING PIC ABL
ING BRT ABL
ING IMPULSO 0
ING IMPULSO V
NO PIC
Q1901 JA101
K-42 10P
PON
TV
TXD
CLK
BLK
AL CIRCUITO V CNV-2
12V
K-52 18P
K-89 2P
K-51 18P
AL CIRCUITO J J-52
AL TUBO A RAGGI CATODICI
AL CIRCUITO J J-51

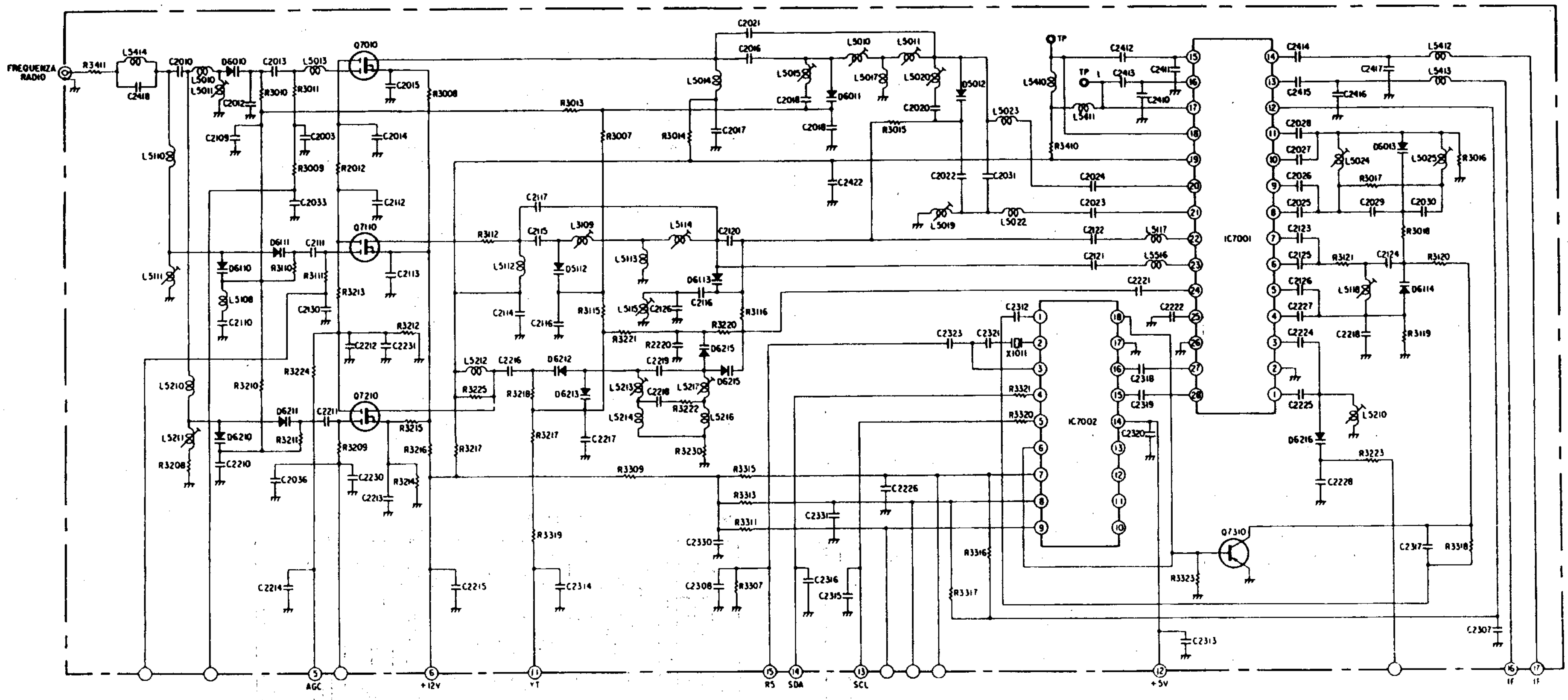


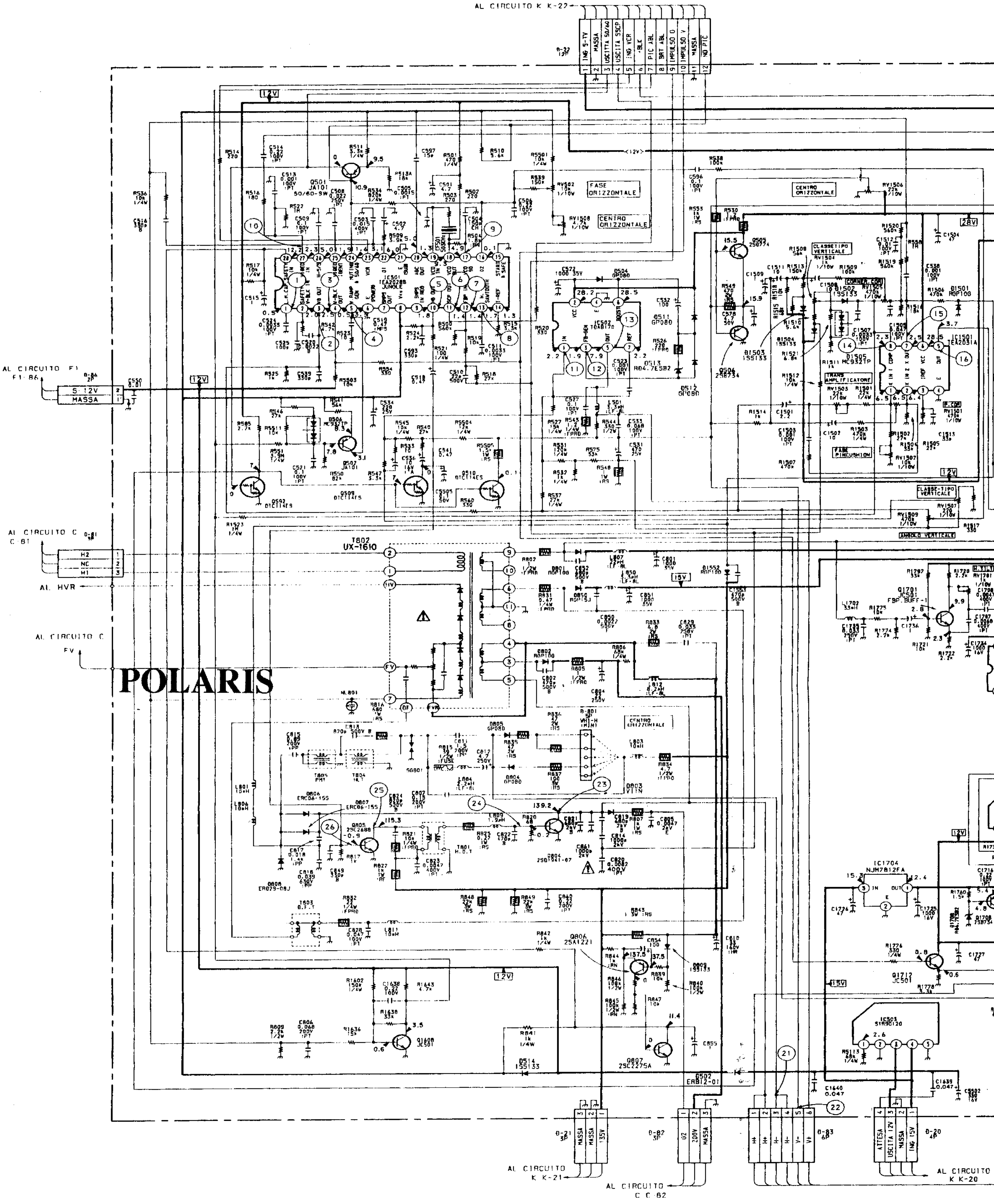
IC1003 BA4558
IC1007 TC4053BPHB
Q1003 JA101
Q1007 DTC144ES
Q1008 DTC144ES
D1005 RB5.6ESB2
K-31 10P GRY-H :BTOB-P
10 ING VIDEO
9 +12V
8 USCITA Y
7 MASSA
6 USCITA VIDEO
5 INTERRUT YC
4 USCITA C
3 USCITA 5V
2 USCITA SDA 2
1 SCL
AL CIRCUITO B B-31
AL CIRCUITO B B-32
10 TONALITA
9 ATTESA
8 MUTO
7 CHAR
6 P/ON
5 MASSA
4 V-BLANK
3 USCITA SSCP
2 +BLK
1 ABL
K-32 10P
K-33 10P
10 MASSA
9 R TEXT
8 V TEXT
7 B TEXT
6 BLK
5 MASSA
4 USCITA R
3 USCITA V
2 USCITA B
1 BLK1
AL CIRCUITO B B-33
K-11 10P
1 C1MT
2 C2MT
3 C4
4 ING S
5 MASSA
6 ING D
7 LIVELLO 4
8 NC
9 MASSA
10 MASSA
AL CIRCUITO A A-11
K-12 10P
1 MASSA
2 ING VIDEO
3 MASSA
4 AFT
5 USCITA +33V
6 USCITA +5V
7 SCL
8 USCITA SDA 2
9 MASSA
10 12V
AL CIRCUITO A A-12
POLARIS
Clr. Stamp K
① 2.6Vp-p (H)
② 4.6Vp-p (H)
③ 6.0Vp-p (H)
④ 5.5Vp-p (H)

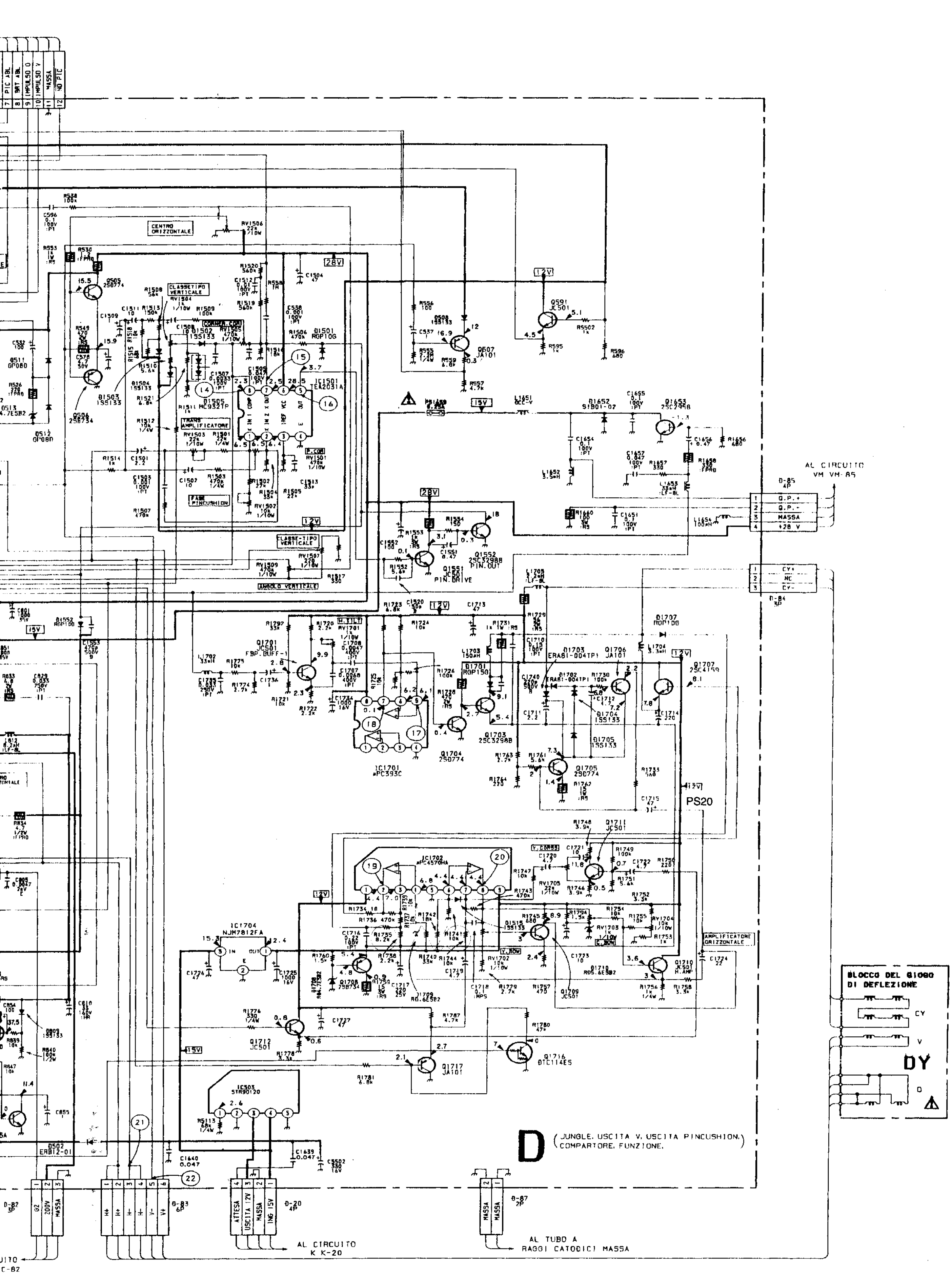

VM
(AMPL VM)
VM-85
4P
28V
MASSA
Q.P.-
Q.P.+
AL CIRCUITO D D-85
L752
100mH
28V
R755
560
1W
:RS
C764
220
6.3V
C765
0.047
F
C766
100
35V
R711
3.3k
Q756
2SD1761-E
C.PRO
27.3
R772
6.8
:FUSE
C763
100
35V
28.4
Q757
JC501
C.PRO
27.3
12V
Q751
JC501
VM-AMP-1
C754
100
16V
R754
820
Q753
2SD774-34
VM-AMP-1
R751
220
Q752
JC501
VM-AMP-1
C755
100p
R752
220
C751
82p
R753
1.2k
R756
560
R758
33k
C756
0.01
400V
:PT
R764
220
R765
1
:FUSE
Q754
2SB772-P
VM.OUT-1
R766
5.6k
R767
1k
R773
18
C758
0.01
400V
:PT
C760
2.2
R768
5.6k
C761
0.1
100V
:PT
Q755
2SD882-P
VM.OUT-2
L751
22mH
C752
0.0018
100V
:PT
R759
100
:FUSE
R760
56
2W
:RS
R769
220
R776
1
:FUSE
R757
5.6k
NECK
MASSA
USCITA VM
QP-
QP+
VM
MASSA
VM-78
3P
AL CIRCUITO B
B 78
POLARIS


P1
P1-96
10P
NC
NC
NC
NC
MASSA
USCITA R
USCITA V
USCITA B
USCITA BLK1
MASSA
AL CIRCUITO K
K 96
AL CIRCUITO K
K 97
NC
NC
NC
NC
MASSA
USCITA BLK1
USCITA B
USCITA V
USCITA R
MASSA
P1-97
10P

CIRCUITO STAMPATO A TU101 UV-816PLL

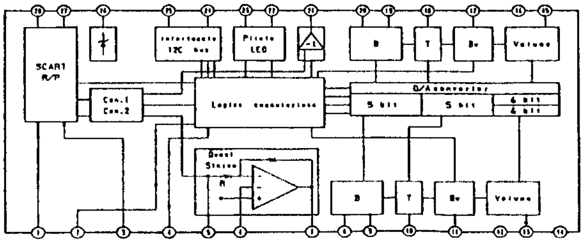



AL CIRCUITO K K-22
ING 5-TV
MASSA
USCITA 50/60
USCITA SSCP
ING VCR
-BLK
PIC ABL
BRT ABL
IMPULSO O
IMPULSO V
MASSA
NO PIC
IC501 TEA2028B JUNGLE
IC502 TDA8170
IC1501 TEA2031A
FASE ORIZZONTALE
CENTRO ORIZZONTALE
CLASSE-TIPO VERTICALE
TRANS AMPLIFICATORE
FASE PINCUSHION
AMBOLO VERTICALE
AL CIRCUITO F1 F1-86
S-12V
MASSA
AL CIRCUITO C C-81
H2
NC
H1
AL HVR
AL CIRCUITO C FV
POLARIS
T802 UX-1610
IC1704 NJM7812FA
IC503 SIR90120
AL CIRCUITO K K-21
MASSA
MASSA
135V
AL CIRCUITO C C-82
G2
200V
MASSA
H+
H+
H-
H-
V-
V+
ATTESA
USCITA 12V
MASSA
ING 15V
AL CIRCUITO K K-20

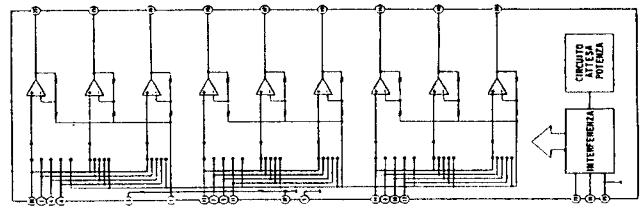


CENTRO ORIZZONTALE
CLASSE-TIPO VERTICALE
CORREZ. COR
TRANS AMPLIFICATORE
FASE PINCUSHION
P. COR
AMPIEZZA VERTICALE
AL CIRCUITO VM VM-85
Q.P.+
Q.P.-
MASSA
+28 V
CY+
NC
CY-
PS20
AMPLIFICATORE ORIZZONTALE
BLOCCO DEL GIOGO DI DEFLEZIONE
CY
V
DY
D
(JUNGLE, USCITA V, USCITA PINCUSHION, COMPARTORE, FUNZIONE)
AL CIRCUITO K K-20
AL TUBO A RAGGI CATODICI MASSA
ATTESA
USCITA 12V
MASSA
ING 15V
PIC ABL
BRT ABL
IMPULSO O
IMPULSO V
MASSA
NO PIC
IC1501 TEA2031A
IC1701 μPC393C
IC1702 μPC4570HA
IC1704 NJM7812FA
IC503 STR90120

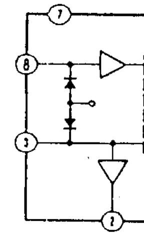
Clr. Stamp. J IC201 TDA6200

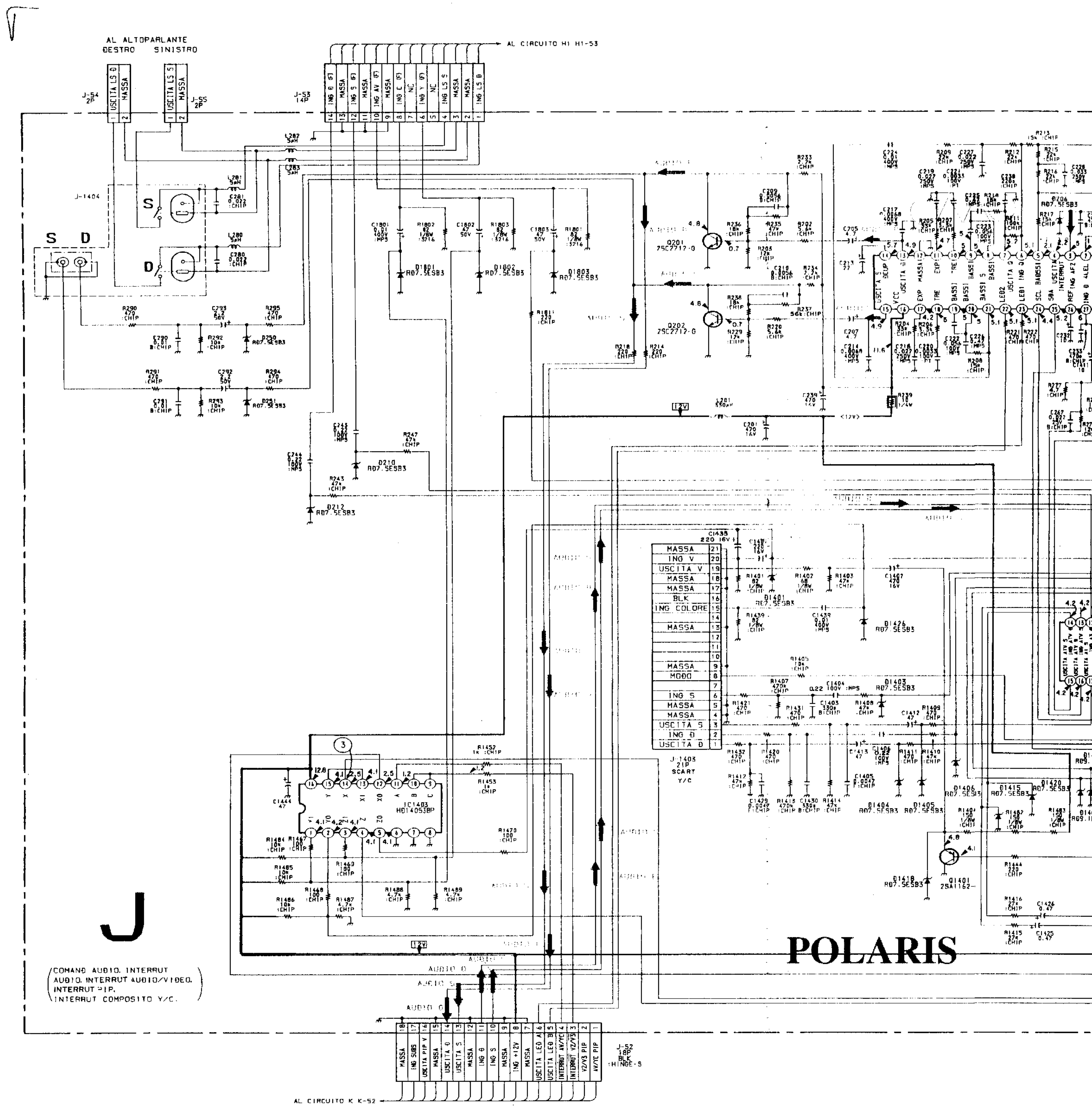


Clr. Stamp. J IC1401 CXA1114P

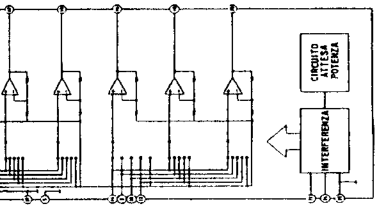


Clr. Stamp. J

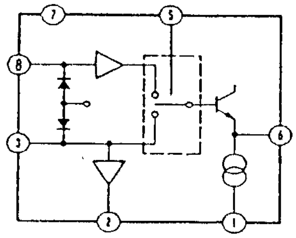




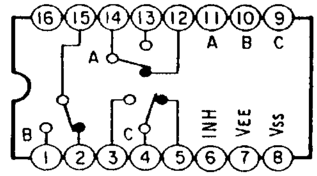
14P

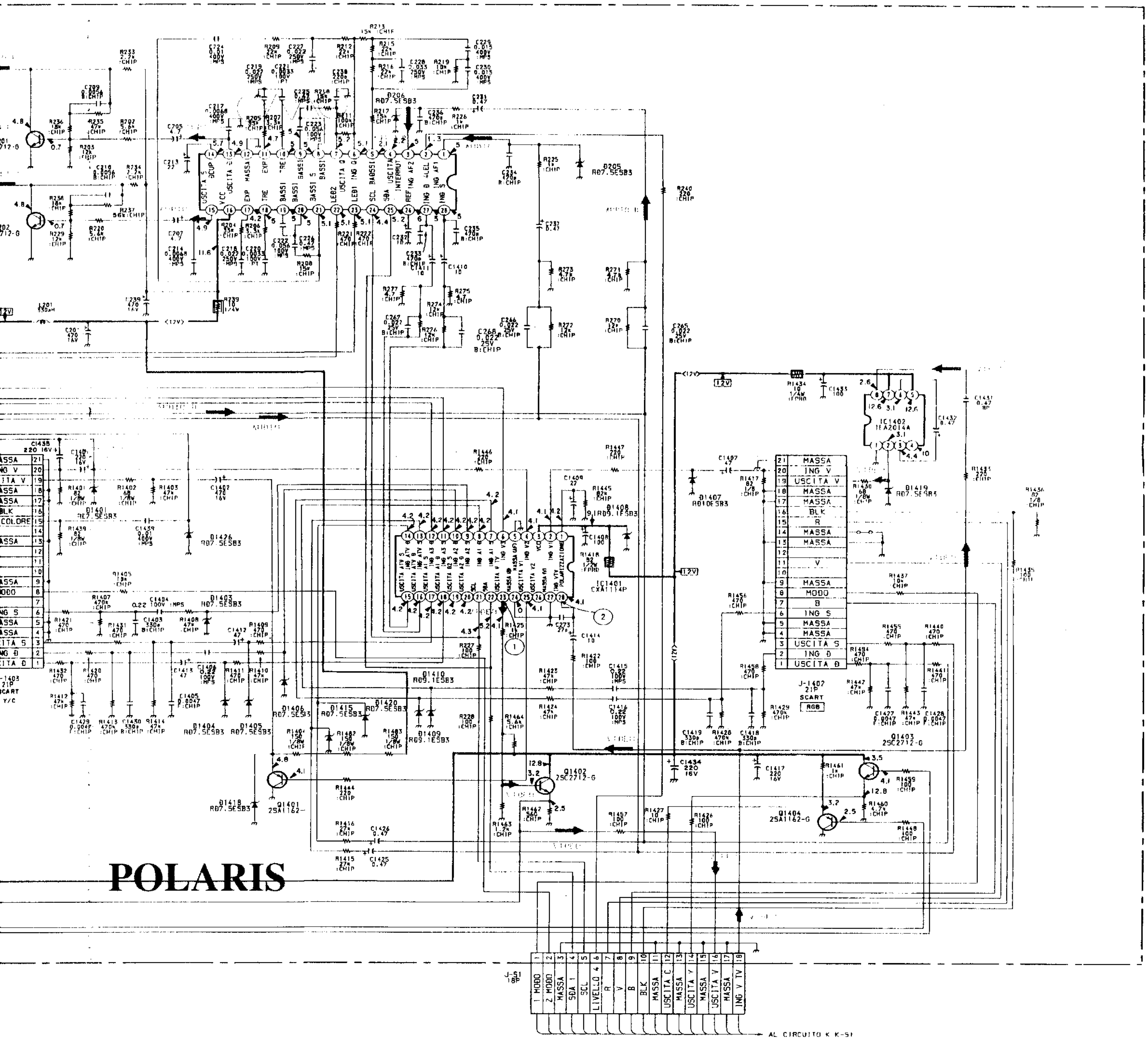


Clr. Stamp. J IC1402 TEA2014A



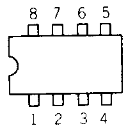
Clr. Stamp. J IC1403 HD14053BP





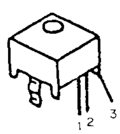
5-6. SEMICONDUCTORS

BA4558
RC4558P
SDA2546
TBA129
TEA2014A
TEA2031A
μPC393C

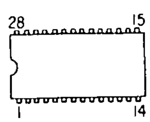


(Top view)

BX-1387
SBX1483-11
SBX1610-11

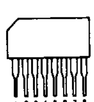


CXA1114P
FCB61C65L-70P
MAB8461P-W208
SAA5246P/E
TDA4580-V6
TDA4580-V7
TDA4650-V3
TDA4650-V4
TDA6200
TEA2028B

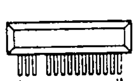


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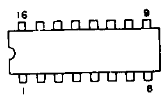
CX20061



DM-38

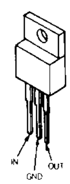


HCF4052BEY
HD14053BP
MC14053BCP
PCF8574
TC4051BPHB
TC4053BPHB
TDA2545A-V4
TDA4660
TDA8442N3
μPD4053BC

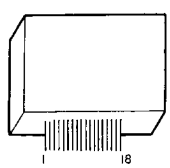


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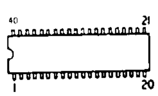
L78S05CV
NJM7812FA
RC7812FA
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UPC7812H



SBX1650-21



SDA20162-B002
SDA20560-A009
SDA20560-A011

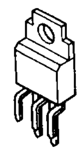


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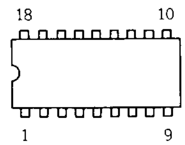
STR90120



TDA2050

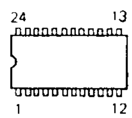


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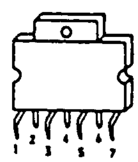
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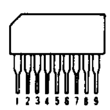


(Top view)

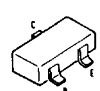
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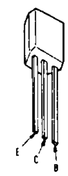
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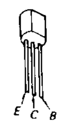
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DTC114EK
DTC124EK
MMST2907A
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2SA1162G
2SB1295-UL6
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2SC2412K-QR
2SC2712
2SC2712G



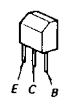
DTC114ES
DTC124ES
DTC144ES



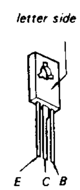
JA101
JA101TP-Q
JC501
2SA733K
2SA1091-O



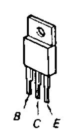
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2SB734-34
2SC2958-L
2SD774-34



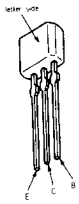
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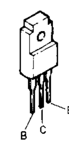
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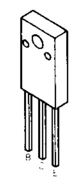
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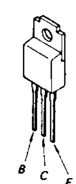
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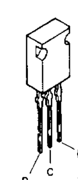
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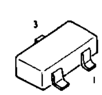
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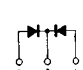


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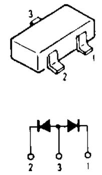


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MA152WK
1S2837

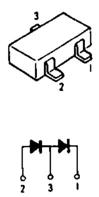




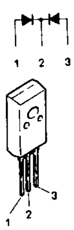
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EGP20G
ERB12
RGP15GPKG23
RGP15J
10E-2



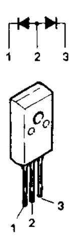
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MA152WK
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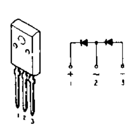
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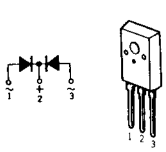
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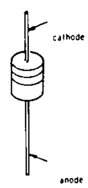
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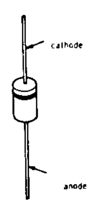
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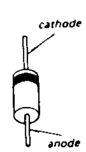
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RD11ES-B3
RD12ES-B2
RD20ES-B3
RD33ES-B1
RD3.0ES-B1
RD3.9ES-B1
RD4.7ES-B2
RD5.6ES-B2
RD5.6ES-B3
RD6.2ES-B2
RD6.8ES-B3
RD7.5ES-B3
RD9.1ES-B3
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WG713A
1SS119
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1SS148



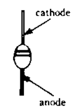
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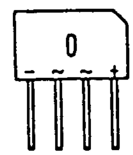
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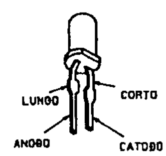
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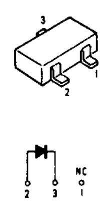
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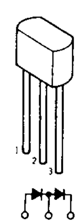
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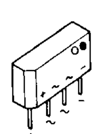
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MA3056
MA3068
RD3.6MB2
RD5.6MB2
RD6.8MB2



MC932

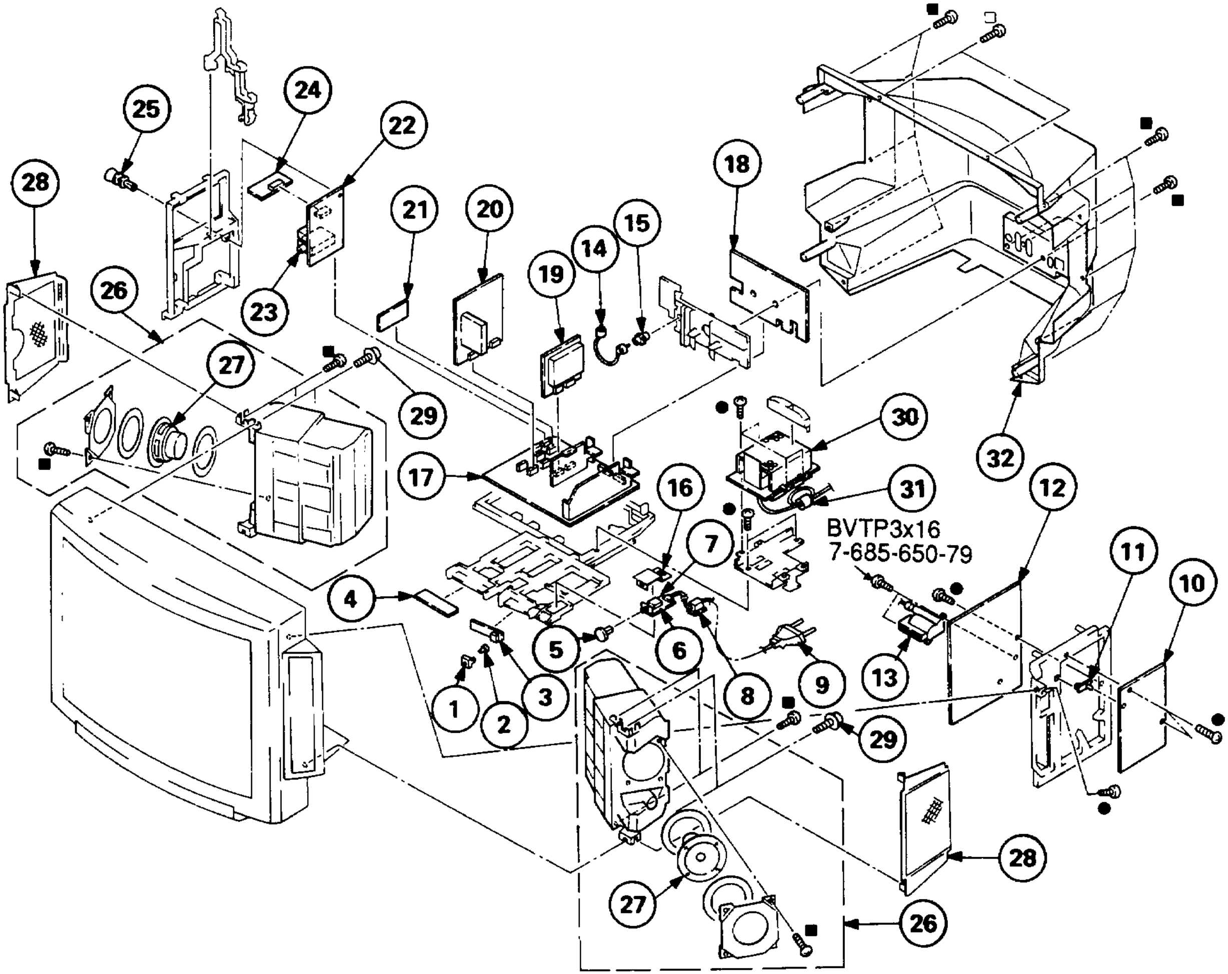


S1VB10
S1VB40



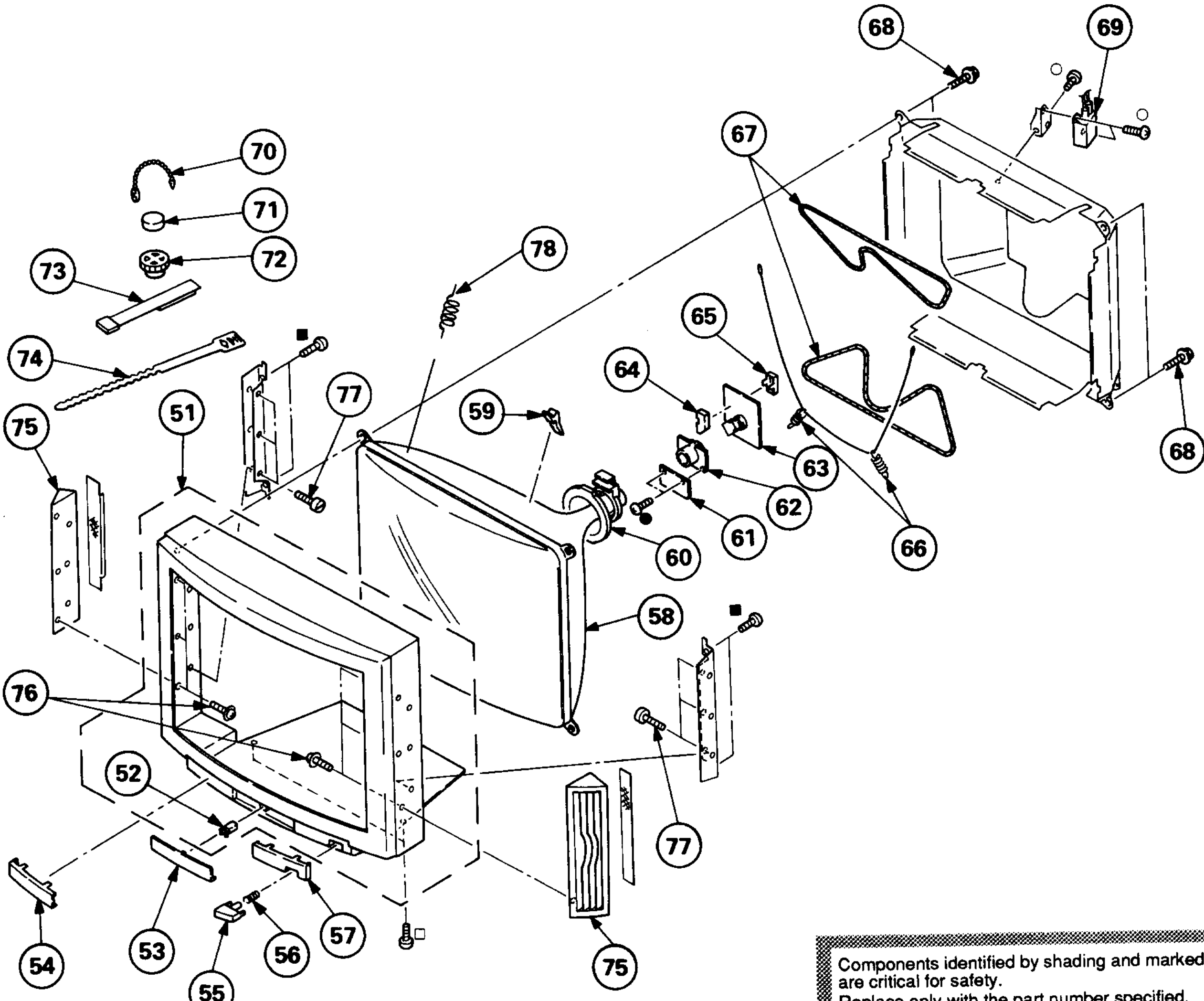
6-1. CHASSIS

● : BVTP3x12 7-685-648-79
■ : BVTP4x16 7-685-663-79
□ : BVTP4x20 7-685-664-79



6-2. PICTURE TUBE

● : BVTP3x12 7-685-648-79
■ : BVTP4x16 7-685-663-79
○ : BVTP4x12 7-685-661-14
□ : BVTP4x20 7-685-664-79



Components identified by shading and marked ⚠ are critical for safety.
Replace only with the part number specified.